Journal of Computational Intelligence in Finance (formerly NeuroVest Journal)

A list of the table of contents for back issues of the Journal of Computational Intelligence in Finance (formerly NeuroVest Journal) is provided, covering Vol.1, No.1 (September/October 1993) to the present.

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look at its built-in neural network simulator.

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signaling for detecting changes in a time series distribution is proposed. The validity of the proposed technique is evaluated in the context of either low-noise or high-noise, non-stationary time series.

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November/December 1996
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Title: Predictors Anonymous

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January/February 1997
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Title: In Search of a Discipline

synchronization of variables applied to data-driven financial systems.

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May/June 1997
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Title: Special Topic: Data Mining for Financial Applications

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July/August 1997
Vol.5, No.4
Title: Practice versus Research

In research related to neural networks, the quantity of data is often restricted with respect to its dimension. This shortage of data occurs in problems such as the forecasting of the financial condition of a company. This paper describes the prediction of company viability using neural networks. Because of the large dimensional input space and limited datasets, three methods were examined for reducing the dimension of the input.

Auto-regressive (AR) linear prediction is a method commonly used to forecast the future values for a time series generated by a linear-stationary system. Extension of the method to (stationary) nonlinear systems requires a bit of non-trivial work. The basic derivation of these methods and several examples are discussed in the context of forecasting stock or futures prices.

The BDS statistic represents a widely-used modern tool for testing serial dependence in a time series. It has demonstrated capabilities for detecting serial correlation even in difficult chaotic time series where others methods fail. It can thus be an effective tool for determining the forecastability of a time series. A very brief guide to the BDS test along with examples and software is presented.

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September/October 1997
Vol.5, No.5
Title: On Qualitative versus Quantitative Methods

Seeing a phenomenon once does not mean it is de facto or de rigour. However, multiple observations can lead to the conclusion that it is to be expected or may be considered a natural consequence. The same notions hold for time series forecasting especially in the financial markets where the data is inherently noisy. In this arena, reliance on a single neural network result could be deemed unacceptable. This study seeks to combine the results of a collection of neural network forecasters in various manners to determine the best combination method for forecasting the South African long bond rates.

The crux of this research is the evaluation of the effectiveness of a neural network implementation for modelling the share prices of the Argentine stock index named MERVAL, taking into account the influence of different indices of the New York Stock Exchange. Four methods of sensitivity analysis and the Discrete Wavelet Transform are considered. Different metrics were applied for the purpose of determining the performance of the neural networks implemented.

A new method which combines numerical approximation techniques and artificial neural networks is used to approximate formulas for option prices and derivatives. Using this method, highly precise analytical formulas can be derived for option types (American, Asian, binaries,...) and models (GARCH, stochastic volatility,...) that are otherwise analytically intractable.
Using the formulas derived according to this new approach, option prices and greeks under these models can be computed instantaneously.

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November/December 1997
Vol.5, No.6
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January/February 1998
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March/April 1998
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May/June 1998
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Title: On Market Efficiency and the Internet

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July/August 1998
Vol.6, No.4
Title: Complexity and Dimensionality Reduction in Finance - Part 1

this paper for solving this problem.

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September/October 1998
Vol.6, No.5
Title: Complexity and Dimensionality Reduction in Finance - Part 2

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November/December 1998
Vol.6, No.6
Title: On Intra-Market Analysis

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January/February 1999
Vol.7, No.1
Title: On Frequentist versus Bayesian Inferencing

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March/April 1999
Vol.7, No.2
Title: Financial News Analysis using Distributed Data Mining

These days textual information becomes increasingly available through the Web. This makes text an attractive resource from which to mine knowledge. The major difficulty in mining textual data is that the information is unstructured. Hence the data has to be preprocessed first so as to obtain some form of structured data which is amenable to data mining techniques. This paper focuses on this preprocessing step. The prediction accuracy achieved by the best text processing method is very close to what can be expected by human experts.

Analysis of Dealers' Processing Financial News
Based on an Artificial Market Approach 23
Kiyoshi Izumi and Kazuhiro Ueda
In this study we used a new agent-based approach to analyze the ways that dealers in a foreign exchange market process the information in financial news. An artificial market model is constructed using a Genetic Algorithm. Using the simulation results, we classified, according to the ways that agents regard the news, three categories of news data. We conclude that emergent phenomena can be explained by the phase transition of forecast variety, which is due to the interaction of agent forecasts and the demand-supply balance.

IE-Expert: Integrating Natural Language Processing and Expert System
Techniques For Real-Time Equity Derivatives Trading 34
Marco Costantino
Quantitative data are today largely analyzed by automatic computer programs based on traditional or artificial intelligent techniques, which provide traders with quantitative information that helps them hedge their risks. Qualitative data and, in particular, articles from on-line news agencies are instead not yet successfully processed. As a result, financial operators, notably traders, suffer from qualitative data-overload. This paper describes how Natural Language Processing, Information Extraction and Expert Systems can be used for reducing the traders' qualitative information overload.

Mining Financial News 53
James Hampton
The Practitioner: Method and Tools
Data-driven market-forecasting tools primarily rely on quantitative information. Such information conforms well to forecasting models that are developed using algorithms which sequence through explicit, discrete samples of numbers. However, because of this, an abundance of potentially beneficial market information in the form of textual and non-periodic financial news is largely overlooked by most active investors and traders. Here, we take a look at how we might utilize this information for financial forecast modeling.

Product Review: Matlab and the Financial Toolbox 55
Mark R. Thomason

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Title: On Global Minds and Markets

Utilization of Vector Autoregressions and Neural Networks
in Identifying the Return Interaction among Global,
Asia-Pacific Regional and Local Stock Markets 5
Chih-Chou Chiu and Yin-Hua Yeh
This study investigates the interactions in the returns of the Global, Asia Pacific regional, and Local stock markets using the vector autoregressions (VAR) and artificial neural networks. As the results reveal, influences on the Hong Kong and Singapore stock markets by the stock market of South East

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July/August 1999
Vol.7, No.4
Title: On Performance Metrics

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September/October 1999
Vol.7, No.5
Title: Advancements in Option Pricing Using Computational Intelligence

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November/December 1999
Vol.7, No.6
Title: Advancements in Option Pricing Using Computational Intelligence (Part 2)