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(71) Name of Applicant :

1) Dr. Meenakshi Nawal Associate Professor

Address of Applicant : Swami Keshvanand Institute of Technology Management & Gramothan, Ramnagaria, Jagatpura, Jaipur-302 017, Rajasthan -----

2) Dr. Sunita Gupta Associate Professor

3) Tushar Mehrotra Assistant Professor

4) Dr. Neha Janu Associate Professor

5) Dr. Neelam Chaplot Associate Professor

6) Dr. Deepika Shekhawat Assistant Professor

Name of Applicant : NA

Address of Applicant : NA

(72) Name of Inventor :

1) Dr. Meenakshi Nawal Associate Professor

Address of Applicant : Swami Keshvanand Institute of Technology Management & Gramothan, Ramnagaria, Jagatpura, Jaipur-302 017, Rajasthan -----

2) Dr. Sunita Gupta Associate Professor

Address of Applicant : Swami Keshvanand Institute of Technology Management & Gramothan, Ramnagaria, Jagatpura, Jaipur-302 017, Rajasthan -----

3) Tushar Mehrotra Assistant Professor

Address of Applicant : College of Computing Sciences & IT, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh -----

4) Dr. Neha Janu Associate Professor

Address of Applicant : Swami Keshvanand Institute of Technology Management & Gramothan, Ramnagaria, Jagatpura, Jaipur-302 017, Rajasthan -----

5) Dr. Neelam Chaplot Associate Professor

Address of Applicant : Poornima College of Engineering, ISI-6, RIICO Institutional Area, Sitapur, Jaipur, Rajasthan 302022 -----

6) Dr. Deepika Shekhawat Assistant Professor

Address of Applicant : Manipal University Jaipur, Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur, Rajasthan 303007, Rajasthan. -----

(57) Abstract :

Our Invention "Intelligent Stock Trading Using Machine Learning and AI- Based" is a The present invention relates to a system for automatically trading real investment items desirably on at least one trading exchange based on predetermined conditions. The present invention includes a data interface for receiving investment data identifying at least one item capable of being traded and containing information uniquely associated with the item. An individual trading computer receives predetermined trading criteria for making a trade. The individual trading computer receives the investment data and the predetermined trading criteria. Artificial intelligence techniques have the ability to take into consideration financial system complexities and they are used as financial time series forecasting tools. Two techniques are used to benchmark the AI techniques, namely, Autoregressive Moving Average (ARMA) which is linear modelling technique and random walk (RW) technique. The experimentation was performed on data obtained from the Johannesburg Stock Exchange. The data used was a series of past closing prices of the All Share Index. The results showed that the three techniques have the ability to predict the future price of the Index with an acceptable accuracy. All three artificial intelligence techniques outperformed the linear model. However, the random walk method outperformed all the other techniques. These techniques show an ability to predict the future price however, because of the transaction costs of trading in the market, it is not possible to show that the three techniques can disprove the weak form of market efficiency. The results show that the ranking of performances support vector machines, neuro-fuzzy systems, multilayer perceptron neural networks is dependent on the accuracy measure used.

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| APPLICANT NAME | 1 . Dr. Meenakshi Nawal Associate Professor 2 . Dr. Sunita Gupta Associate Professor 3 . Tushar Mehrotra Assistant Professor 4 . Dr. Neha Janu Associate Professor 5 . Dr. Neelam Chaplot Associate Professor 6 . Dr. Deepika Shekhawat Assistant Professor |
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| E-MAIL (As Per Record) | dr.bksarkar2003@yahoo.in |
| ADDITIONAL-EMAIL (As Per Record) | dr.bksarkar2003@gmail.com |
| E-MAIL (UPDATED Online) | |
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