Fuzzy Inf. Eng. (2017) 9: 137–159

Available online at www.sciencedirect.com
ScienceDirect
Fuzzy Information and Engineering
http://www.elsevier.com/locate/fiae

ORIGINAL ARTICLE

A Novel Fuzzy Document Based Information Retrieval Model for Forecasting

Partha Roy · Ramesh Kumar · Sanjay Sharma

Received: 25 August, 2015 / Revised: 12 January, 2017 /
Accepted: 3 May, 2017 /

Abstract Information retrieval systems are generally used to find documents that are most appropriate according to some query that comes dynamically from users. In this paper a novel Fuzzy Document based Information Retrieval Model (FDIRM) is proposed for the purpose of Stock Market Index forecasting. The novelty of proposed approach is a modified tf-idf scoring scheme to predict the future trend of the stock market index. The contribution of this paper has two dimensions, 1) In the proposed system the simple time series is converted to an enriched fuzzy linguistic time series with a unique approach of incorporating market sentiment related information along with the price and 2) A unique approach is followed while modeling the information retrieval (IR) system which converts a simple IR system into a forecasting system. From the performance comparison of FDIRM with standard benchmark models it can be affirmed that the proposed model has a potential of becoming a good forecasting model. The stock market data provided by Standard & Poor's CRISIL NSE Index 50 (CNX NIFTY-50 index) of National Stock Exchange of India (NSE) is used to experiment and validate the proposed model. The authentic data for validation and experimentation is obtained from http://www.nseindia.com which is the official website of NSE. A java program is under construction to implement the model in

Partha Roy (✉)
Department of Computer Science and Engineering, Bhilai Institute of Technology, Durg, Chhattisgarh-491001, India
email: patsroy@gmail.com
Ramesh Kumar
Department of Computer Science and Engineering, Bhilai Institute of Technology, Durg, Chhattisgarh-491001, India
Sanjay Sharma
Department of Applied Mathematics, Bhilai Institute of Technology, Durg, Chhattisgarh-491001, India
Peer review under responsibility of Fuzzy Information and Engineering Branch of the Operations Research Society of China.

http://dx.doi.org/10.1016/j.fiae.2017.06.002