Abstract

Autocorrelation measures the degree to which a current variable is correlated to the past values. Autocorrelation can be measured by running a regression equation. The study employs this temporal correlation that exists between the various stock markets related variables to predict future trends and prices, using two stochastic signal modeling processes. Data for stocks listed on the NASDAQ was scraped from the Yahoo! Finance website. Autoregressive (AR) and Autoregressive Moving Average (ARMA) techniques have been used.
to predict the next day’s closing price using a time series input of the previous L days. Autoregression models the dependence of the variable to be predicted with its own lagged terms while Autoregressive Moving Average builds on Autoregression by allowing for the introduction of the Moving Average model which includes lagged terms on the residuals. The mean square error of the two was compared. The study concludes that the two models should be used in consonance for accurately modeling the magnitude and the direction of the movement in the variable to be predicted.

References

- Lochmiller, Chen, Predicting Short Term Stock Returns, CS299 Stanford, December 2013

Index Terms

Computer Science Signal Processing
Keywords
Stock Market Prediction  Dsp  Statistical Signal Processing  Regression Models
Autoregressive

Autoregressive Moving Average