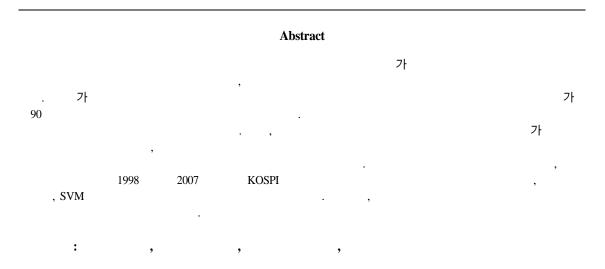


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A Combination Model of Multiple Artificial Intelligence Techniques Based on Genetic Algorithms for the Prediction of Korean Stock Price Index(KOSPI)

Lee, Hyoungyong



There have been many studies that predict the up/down patterns of the stock markets using various artificial intelligence techniques, such as logistic regression(LR), artificial neural networks(ANN), and SVM(Support Vector Machines). Also, some researchers have tried to combine the prediction results of the individual classifiers in order to improve prediction accuracy since the late of 1990s. In this paper, a novel combination model of several artificial intelligence techniques is suggested. The proposed model combines the prediction results of the individual classifiers with the optimized relative importance weights, which are generated by using genetic algorithms(GA). In addition, it also optimizes the threshold, which becomes a criterion to decide the direction of the stock market price (Up or Down). To validate the usefulness of the propose model, we built four classification models - LR, ANN, and SVM - to predict the up/down directions of KOSPI from 1998 to 2007. And, we tried to combine these individual classifiers using the proposed model. As a result, we found that our model may improve the prediction accuracy.

Keywords: Combination Model, Threshold Optimization, Genetic Algorithms, Stock Market Prediction

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1.
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                                                                                   (Threshold, Cut-off Value)
                                       가
          (Stock Market)
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                                                                            (Genetic Algorithms, GA)
                                            (Trader)
                                                                                                           2
                                                                                                   , 3
            가
                      (難題)
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             [12].
                           가
                                                                                                 , 5
(Random)
                                               가
                                      [29].
                                                         2.
         (Complex Systems Theory)'
                                   [10].
                                                                                                     LOGIT,
                                                         ANN, SVM
       가
                                                        2.1
                                                                              (LOGIT)
                           LOGIT(Logistic Regression,
                 ), ANN(Artificial Neural Networks,
                                                                                 , 가
        ), SVM(Support Vector Machines)
                                                         (二分法)
                                    , 가
                                                        가,
                                                                    가
                                                                        가
                                                             가,
      (Ensemble)
                                                                                     가
                                      (異種)
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                                        [23][26][28].
                                                                                            가
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                                 (Voting)
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    (Averaging)
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[20].
             LOGIT, ANN,
                                  SVM
                                           3가
                                                                        (Logistic Regression)
                                                        (LOGIT)
                                   가
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