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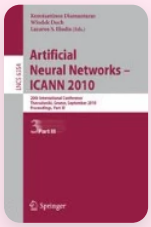

Artificial Neural Networks – ICANN 2010

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Abstract

In this paper we present a novel approach for identifying the head-and-shoulders technical analysis pattern based on neural networks. For training the network we use actual patterns that were identified in stochastically simulated price series by means of a rule-based algorithm. Then the patterns are being converted to binary

images, in a manner similar to the one used in hand-written character and digit recognition. Our approach is tested on new simulated price series using a rolling window of variable size. The results are very promising with an overall correct classification rate of 97.1%.

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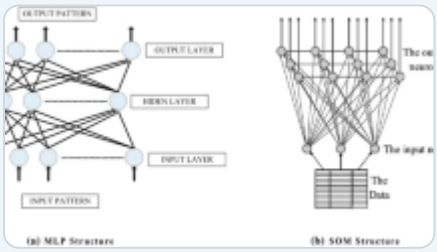

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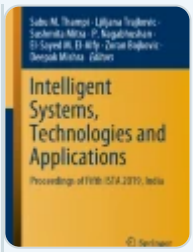

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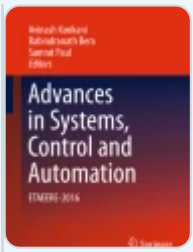

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References

1. Bernd, L.: Are Technical Trading Rules Profitable? Evidence for head-and-shoulder rules. Applied Economics 35, 33–40 (2003)

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2. Edwards, R.D., Magee, J.: Technical Analysis of Stock Trends. 7th edn. (1997)

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3. Achelis, S.B.: Technical Analysis From A to Z (1995)

Google Scholar

4. McCulloch, W.S., Pitts, W.H.: A logical calculus of the ideas immanent in nervous activity. Bulletin of Mathematical Biophysics 5, 115–133 (1943)

Article MATH MathSciNet Google Scholar

5. Li, T.F., Yu, S.S.: Handprinted Chinese character recognition using the probability distribution feature. Int. J. Pattern Recogn. Artif. Intell. 8(5), 1241–1258 (1994)

Article Google Scholar

6. Tsay, M.-K., Shyo, K.-H., Chang, P.-C.: Feature Transformation with Generalized Learning Vector Quantization for Hand-Written chinese Character Recognition. IEICE Trans. Inf. & Syst., E82-D(3) (1999)

Google Scholar

7. Camastra, F., Vinciarelli, A.: Cursive character recognition by learning vector quantization. Pattern Recognition Letters 22, 625–629 (2001)

Article MATH Google Scholar

8. Liu, C.-L., Nakagawa, M.: Evaluation of prototype learning algorithms for nearest-neighbor classifier in application to handwritten character recognition. Pattern Recognition 34, 601–615 (2001)

Article MATH Google Scholar

9. Liu, C.-L., Sako, H., Fujisawa, H.: Performance evaluation of pattern classifiers for handwritten character recognition. International Journal on Document Analysis and Recognition 4, 191–204 (2002)

Article Google Scholar

10. Chi, Z., Wu, J., Yan, H.: Handwritten Numeral Recognition Using Self-Organizing Maps and Fuzzy Rules. Pattern Recognition 28(1), 59–66 (1995)

Article Google Scholar

11. Looney, C.G.: Pattern Recognition Using Neural Networks (1997)

Google Scholar

12. Tseng, D.C., Chiu, H.P., Cheng, J.H.: Invariant handwritten Chinese character recognition using fuzzy ring data. Image and Vision Computing 14, 647–657 (1996)

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13. Kohonen, T.: Self-Organizing Maps. In: Huang, T.S., Kohonen, T., Schroeder, M.R. (eds.) 2nd edn. Springer series in information sciences, vol. 30 (1997)

Google Scholar

14. Cho, S.-B.: Ensemble of structure-adaptive self-organizing maps for high performance classification. Information Sciences 123, 103–114 (1999)

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15. Hull, J.C.: Options, Futures, and Other Derivatives. 6th edn. (2006)

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16. Fama, E.: 'Efficient Capital Markets: A Review of Theory and Empirical Work'. Journal of Finance 25(2), 383–417 (1970)

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17. Fama, E.: 'Efficient Capital Markets II'. Journal of Finance 46(5), 1575–1617 (1991)

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