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# Identification of the Head-and-Shoulders Technical Analysis Pattern with Neural Networks

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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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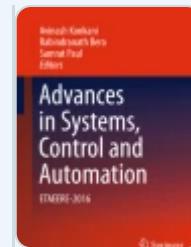
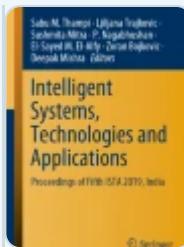
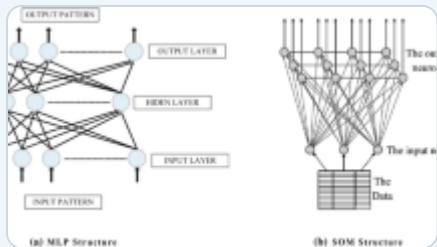
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# References

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)

[Google Scholar](#)

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

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)

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)

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

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

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)

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)

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)

[Google Scholar](#)

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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