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A Study on Associated Rules and Fuzzy Partitions for Classification

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ABSTRACT
The amount of data for decision making has increased tremendously in the age of the digital economy. Decision makers who fail to proficiently manipulate the data produced may make incorrect decisions and therefore harm their business. Thus, the task of extracting and classifying the useful information efficiently and effectively from huge amounts of computational data is of special importance. In this paper, we consider that the attributes of data could be both crisp and fuzzy. By examining the suitable partial data, segments with different classes are formed, then a multithreaded computation is performed to generate crisp rules (if possible), and finally, the fuzzy partition technique is employed to deal with the fuzzy attributes for classification. The rules generated in classifying the overall data can be used to gain more knowledge from the data collected.

KEYWORDS
Data Mining; Fuzzy Partition; Partial Classification; Association Rule; Knowledge Discovery.

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References
[1]   R. Agrawal, T. Imielinski and A. Swami, " Mining Association Rules between Sets of Items in Large Databases," Proceeding of the ACM SIGMOD Conference on Management of Data, Washington DC, 26-28 May 1993, pp. 207-216.

[2]   K. Ali, S. Manganaris and R. Srikant, " Partial Classification Using Association Rules," Proceeding of the 3rd International Conference on Knowledge Discovery and Data Mining, (KDD-97), 14-17 August 1997, Newport Beach, pp. 115-118.

[3]   R. J. Bayardo, " Brute-Force Mining of High Confidence Classification Rules," Proceeding of the 3rd International Conference on Knowledge Discovery and Data Mining, (KDD-97), 14-17 August 1997, Newport Beach, pp. 123126.

[4]   M. S. Chen, J. Han and P. S. Yu, " Data Mining: An Overview from a Database Perspective," IEEE Transactions on Knowledge and Data Engineering, Vol. 8, No. 6, 1996, pp. 866-883. doi:10.1109/69.553155

[5]   F. Coenen, P. Leng and L. Zhang, " Threshold Tuning for Improved Classification Association Rule Mining," Advances in Knowledge Discovery and Data Mining, Vol. 3518, 2005, pp. 303-305. doi:10.1007/11430919_27

[6]   A. Evfimievski, R. Srikant, R. Agrawal and J. Gehrke, " Privacy Preserving Mining of Association Rules," Information Systems, Vol. 29, No. 4, 2004, pp. 343-364. doi:10.1016/j.is.2003.09.001

[7]   U. M. Fayyad, G. Piatetsky-Shapiro and P. Smyth, " From Data Mining to Knowledge Discovery: An Overview," In: U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth and R. Uthurusamy, Editors, Advances in Knowledge Discovery and Data Mining, AAAI Press, Menlo Park, 1996, pp 134.

[8]   A. A. Freitas, " A Survey of Evolutionary Algorithms for Data Mining and Knowledge Discovery,"

Advances in Evolutionary Computing—Natural Computing Series, Part II, Springer-Verlag, New York, 2003, pp. 819-845.

[9] J. Han and M. Kamber, "Data Mining Concepts and Techniques," Morgan Kaufmann, San Francisco, 2001.

[10] J. Han, J. Pei and Y. Yin, "Mining Frequent Patterns without Candidate Generation," Computing Science Technical Report, TR-99-12, Simon Fraser University, Burnaby, 1999.

[11] Y.-C. Hu, R.-S. Chen and G.-H. Tzeng, "Finding Fuzzy Classification Rules Using Data Mining Techniques," Pattern Recognition Letters, Vol. 24, No. 3, 2003, pp. 509-519. doi:10.1016/S0167-8655(02)00273-8

[12] H. Ishibuchi and T. Yamamoto, "Fuzzy Rule Selection by Multi-Objective Genetic Local Search Algorithms and Rule Evaluation Measures in Data Mining," Fuzzy Sets and Systems, Vol. 141, No. 1, 2004, pp. 59-88. doi:10.1016/S0165-0114(03)00114-3

[13] H. Ishibuchi, T. Nakashima and T. Morisawa, "Voting in Fuzzy Rule-Based Systems for Pattern Classification Problems," Fuzzy Sets and Systems, Vol. 103, No. 2, 1999, pp. 223-238. doi:10.1016/S0165-0114(98)00223-1

[14] M. Kantarcioglu and C. Clifton, "Privacy-Preserving Distributed Mining of Association Rules on Horizontally Partitioned Data," IEEE Transactions on Knowledge and Data Engineering, Vol. 16, No. 9, 2004, pp. 1026-1037. doi:10.1109/TKDE.2004.45

[15] R. Kruse, J. Gebhardt and F. Klawonn, "Foundations of Fuzzy Data," John Wiley & Sons, Chichester, 1994.

[16] W. Li, J. Han and J. Pei, "CMAR: Accurate and Efficient Classification Based on Multiple Class-Association Rules," Proceeding of 2001 International Conference on Data Mining (ICDM' 01), San Jose, 2001.

[17] B. Liu, W. Hsu and Y. M. Ma, "Integrating Classification and Association Rule Mining," Proceeding of the 4th International Conference on Knowledge Discovery and Data Mining (KDD-98), New York, 27-31 August 1998, pp. 80-86.

[18] H. Mannila, H. Toivonen and I. Verkamo, "Efficient Algorithms for Discovering Association Rules," AAAI Workshop on Knowledge Discovery in Databases, Seattle, 1994.