Contrast pattern mining and its applications

Kotagiri Ramamohanarao

Department of Computer Science and Software Engineering

The University of Melbourne

Kotagiri@unimelb.edu.au

Abstract

The ability to distinguish, differentiate and contrast between different data sets is a key objective in data mining. Such ability can assist domain experts to understand their data, and can help in building classification models. This presentation will introduce the principal techniques for contrasting data sets. It will also focus on some important real world application areas that illustrate how mining contrasts is advantageous.

References

1) James Bailey, Thomas Manoukian, Kotagiri Ramamohanarao: Fast Algorithms for Mining Emerging Patterns. PKDD 2002: 39-50.

2) J. Bailey and T. Manoukian and K. Ramamohanarao: A Fast Algorithm for Computing Hypergraph Transversals and its Application in Mining Emerging Patterns. Proceedings of the 3rd IEEE International Conference on Data Mining (ICDM). Pages 485-488. Florida, USA, November 2003.

3) Jinyan Li, Thomas Manoukian, Guozhu Dong, Kotagiri Ramamohanarao: Incremental Maintenance on the Border of the Space of Emerging Patterns. Data Min. Knowl. Discov. 9(1): 89-116 (2004).

4) Hamad Alhammady, Kotagiri Ramamohanarao: The Application of Emerging Patterns for Improving the Quality of Rare-Class Classification. PAKDD 2004: 207-211

5) Hamad Alhammady, Kotagiri Ramamohanarao: Using Emerging Patterns and Decision Trees in Rare-Class Classification. ICDM 2004: 315-318

6) Hamad Alhammady, Kotagiri Ramamohanarao: Expanding the Training Data Space Using Emerging Patterns and Genetic Methods. SDM 2005

7) Hamad Alhammady, Kotagiri Ramamohanarao: Using Emerging Patterns to Construct Weighted Decision Trees. IEEE Trans. Knowl. Data Eng. 18(7): 865-876 (2006).

8) Hongjian Fan, Kotagiri Ramamohanarao: An Efficient Single-Scan Algorithm for Mining Essential Jumping Emerging Patterns for Classification. PAKDD 2002: 456-462

9) Hongjian Fan, Kotagiri Ramamohanarao: Efficiently Mining Interesting Emerging Patterns. WAIM 2003: 189-201

10) Hongjian Fan, Kotagiri Ramamohanarao: Noise Tolerant Classification by Chi Emerging Patterns. PAKDD 2004: 201-206

11) Hongjian Fan, Ming Fan, Kotagiri Ramamohanarao, Mengxu Liu: Further Improving Emerging Pattern Based Classifiers Via Bagging. PAKDD 2006: 91-96

12) Hongjian Fan, Kotagiri Ramamohanarao: Fast Discovery and the Generalization of Strong Jumping Emerging Patterns for Building Compact and Accurate Classifiers. IEEE Trans. Knowl. Data Eng. 18(6): 721-737 (2006)

13) Jinyan Li, Guozhu Dong, Kotagiri Ramamohanarao: Instance-Based Classification by Emerging Patterns. PKDD 2000: 191-200

14) Jinyan Li, Guozhu Dong, Kotagiri Ramamohanarao: Making Use of the Most Expressive Jumping Emerging Patterns for Classification. PAKDD 2000: 220-232

15) Jinyan Li, Guozhu Dong, Kotagiri Ramamohanarao: Making Use of the Most Expressive Jumping Emerging Patterns for Classification. Knowl. Inf. Syst. 3(2): 131-145 (2001)

16) Jinyan Li, Guozhu Dong, Kotagiri Ramamohanarao, Limsoon Wong: DeEPs: A New Instance-Based Lazy Discovery and Classification System. Machine Learning 54(2): 99-124 (2004).

17) Jinyan Li, Kotagiri Ramamohanarao, Guozhu Dong: Combining the Strength of Pattern Frequency and Distance for Classification. PAKDD 2001: 455-466

18) Kotagiri Ramamohanarao, James Bailey: Discovery of Emerging Patterns and Their Use in Classification. Australian Conference on Artificial Intelligence 2003: 1-12

19) Ramamohanarao, K. and Bailey, J. and Fan, H. Efficient Mining of Contrast Patterns and Their Applications to Classification, Third International Conference on Intelligent Sensing and Information Processing, 2005 (39--47).

20) Ramamohanarao, K. and Fan, H. Patterns Based Classifiers, World Wide Web 2007: 10(71--83).

21) Qun Sun, Xiuzhen Zhang, Kotagiri Ramamohanarao: Noise Tolerance of EP-Based Classifiers. Australian Conference on Artificial Intelligence 2003: 796-806

22) Xiuzhen Zhang, Guozhu Dong, Kotagiri Ramamohanarao: Information-Based Classification by Aggregating Emerging Patterns. IDEAL 2000: 48-53

23) Zhou Wang, Hongjian Fan, Kotagiri Ramamohanarao: Exploiting Maximal Emerging Patterns for Classification. Australian Conference on Artificial Intelligence 2004: 1062-1068