


Document details

[< Back to results](#) | 1 of 1
[↗ Export](#)
[↓ Download](#)
[🖨 Print](#)
[✉ E-mail](#)
[Save to PDF](#)
[☆ Add to List](#)
[More... >](#)
[Full Text](#)
[View at Publisher](#)

Indonesian Journal of Electrical Engineering and Computer Science
Volume 8, Issue 2, November 2017, Pages 487-494

Towards scalable algorithm for closed itemset mining in high-dimensional data (Article)

Zaki, F.A.M. ✉, Zulkurnain, N.F. ✉ 

Department of Electrical and Computer Engineering, Kuliyyah of Engineering, International Islamic University Malaysia, Malaysia

Abstract

[View references \(17\)](#)

Mining frequent itemsets from large dataset has a major drawback in which the explosive number of itemsets requires additional mining process which might filter the interesting ones. Therefore, as the solution, the concept of closed frequent itemset was introduced that is lossless and condensed representation of all the frequent itemsets and their corresponding supports. Unfortunately, many algorithms are not memory-efficient since it requires the storage of closed itemsets in main memory for duplication checks. This paper presents BFF, a scalable algorithm for discovering closed frequent itemsets from high-dimensional data. Unlike many well-known algorithms, BFF traverses the search tree in breadth-first manner resulted to a minimum use of memory and less running time. The tests conducted on a number of microarray datasets show that the performance of this algorithm improved significantly as the support threshold decreases which is crucial in generating more interesting rules. © 2017 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

Association rules Closed itemsets mining High-dimensional data Scalable algorithm

ISSN: 25024752

Source Type: Journal

Original language: English

DOI: 10.11591/ijeecs.v8.i2.pp487-494

Document Type: Article

Publisher: Institute of Advanced Engineering and Science

References (17)

[View in search results format >](#)

All [Export](#) [🖨 Print](#) [✉ E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Agrawal, R., Imieliński, T., Swami, A.
Mining Association Rules Between Sets of Items in Large Databases

(1993) *ACM SIGMOD Record*, 22 (2), pp. 207-216. Cited 8729 times.
doi: 10.1145/170036.170072

[View at Publisher](#)

- 2 Pasquier, N., Bastide, Y., Taouil, R., Lakhal, L.
Discovering frequent closed itemsets for association rules

(1998) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 1540, pp. 398-416. Cited 669 times.

<http://springerlink.com/content/0302-9743/copyright/2005/>
ISBN: 3540654526; 978-354065452-0

Metrics

0 Citations in Scopus

0 Field-Weighted

Citation Impact



PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

[Set citation feed >](#)

Related documents

Mining frequent patterns from very high dimensional data: A top-down row enumeration approach

Liu, H. , Han, J. , Xin, D.
(2006) *Proceedings of the Sixth SIAM International Conference on Data Mining*

Finding all frequent patterns starting from the closure

El-Hajj, M. , Zaiane, O.R.
(2005) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*

Efficient algorithm for frequent closed patterns mining from high dimensional data

Hu, K. , Tang, X. , Da, Q.
(2007) *Dongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Southeast University (Natural Science Edition)*

[View all related documents based on references](#)

- 3 Bastide, Y., Pasquier, N., Taouil, R., Stumme, G., Lakhal, L.
Mining minimal non-redundant association rules using frequent closed itemsets
(2000) *Lecture Notes in Artificial Intelligence (Subseries of Lecture Notes in Computer Science)*, 1861, pp. 972-986. Cited 192 times.
ISBN: 3540677976; 978-354067797-0
[View at Publisher](#)

Find more related documents in
Scopus based on:

[Authors >](#) [Keywords >](#)

- 4 Han, J., Pei, J., Yin, Y.
Mining frequent patterns without candidate generation
(2000) *SIGMOD Record (ACM Special Interest Group on Management of Data)*, 29 (2), pp. 1-12. Cited 3577 times.
doi: 10.1145/335191.335372
[View at Publisher](#)

- 5 Zaki, M.J.
Scalable algorithms for association mining
(2000) *IEEE Transactions on Knowledge and Data Engineering*, 12 (3), pp. 372-390. Cited 742 times.
doi: 10.1109/69.846291
[View at Publisher](#)

- 6 Wang, J., Han, J., Pei, J.
CLOSEST+: Searching for the best strategies for mining frequent closed itemsets
(2003) *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 236-245. Cited 405 times.
doi: 10.1145/956750.956779
[View at Publisher](#)

- 7 Grahne, G., Zhu, J.
Efficiently using prefix-trees in mining frequent itemsets
(2003) *Proceeding of the ICDM'03 International Workshop on Frequent Itemset Mining Implementations (FIMI'03)*, pp. 123-132. Cited 184 times.
Melbourne, FL

- 8 Zaki, M.J., Hsiao, C.J.
CHARM: An efficient algorithm for closed itemset mining
(2002) *Proceeding of the 2002 SIAM International Conference on Data Mining (SDM'02)*, pp. 457-473. Cited 486 times.
Arlington, VA

- 9 Liu, G., Lu, H., Lou, W., Yu, J.X.
On computing, storing and querying frequent patterns
(2003) *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 607-612. Cited 38 times.
doi: 10.1145/956750.956827
[View at Publisher](#)

- 10 Burdick, D., Calimlim, M., Gehrke, J.
MAFIA: A maximal frequent itemset algorithm for transactional databases
(2001) *Proceedings - International Conference on Data Engineering*, pp. 443-452. Cited 389 times.
doi: 10.1109/ICDE.2001.914857
[View at Publisher](#)

-
- 11 Király, A., Gyenesei, A., Abonyi, J.
Bit-table based biclustering and frequent closed itemset mining in high-dimensional binary data
(2014) *The Scientific World Journal*, 2014, art. no. 870406. Cited 4 times.
doi: 10.1155/2014/870406
[View at Publisher](#)
-
- 12 Lucchese, C., Orlando, S., Perego, R.
Fast and memory efficient mining of frequent closed itemsets
(2006) *IEEE Transactions on Knowledge and Data Engineering*, 18 (1), pp. 21-36. Cited 135 times.
doi: 10.1109/TKDE.2006.10
[View at Publisher](#)
-
- 13 Pan, F., Cong, G., Tung, A.K.H., Yang, J., Zaki, M.J.
Carpenter: Finding closed patterns in long biological datasets
(2003) *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 637-642. Cited 119 times.
doi: 10.1145/956750.956832
[View at Publisher](#)
-
- 14 Cong, G., Tung, A.K.H., Xu, X., Pan, F., Yang, J.
FARMER: Finding interesting rule groups in microarray datasets
(2004) *Proceedings of the ACM SIGMOD International Conference on Management of Data*, pp. 143-154. Cited 76 times.
[View at Publisher](#)
-
- 15 Cong, G., Tan, K.-L., K.h.tung, A., Xu, X.
Mining top-k covering rule groups for gene expression data
(2005) *Proceedings of the ACM SIGMOD International Conference on Management of Data*, pp. 670-681. Cited 94 times.
doi: 10.1145/1066157.1066234
[View at Publisher](#)
-
- 16 Pan, F., Tung, A.K.H., Cong, G., Xu, X.
COBBLER: Combining column and row enumeration for closed pattern discovery
(2004) *Proceedings of the International Conference on Scientific and Statistical Database Management, SSDBM*, 16, pp. 21-30. Cited 29 times.
-
- 17 Peng, H., Long, F., Ding, C.
Feature selection based on mutual information: Criteria of Max-Dependency, Max-Relevance, and Min-Redundancy
(2005) *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 27 (8), pp. 1226-1238. Cited 3636 times.
doi: 10.1109/TPAMI.2005.159
[View at Publisher](#)
-

About Scopus

[What is Scopus](#)
[Content coverage](#)
[Scopus blog](#)
[Scopus API](#)
[Privacy matters](#)

Language

[日本語に切り替える](#)
[切换到简体中文](#)
[切换到繁體中文](#)
[Русский язык](#)

Customer Service

[Help](#)
[Contact us](#)

ELSEVIER

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2018 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

 RELX Group™