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Searching Application-Level Meaning for Data Compaction

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ABSTRACT: Natural developments show that many brutes form large social groups and move in regular forms. However, previous works focus on finding the motion forms of each single object or all objects. In this paper, we first propose an effective disseminated mining rule to jointly identify a group of acting objects and detect their motion forms in wireless sensor networks. Afterward, we propose a compaction rule, called 2 Samuel, which feats the received group motion forms to reduce the amount of delivered data. The compaction rule includes an episode unite and an information simplification phases. In the episode unite phase, we propose a unite rule to unite and compaction the localization data of a group of acting objects. In the information simplification phase, we develop a collision point Replacement (CPR) problem and propose an exchange algorithm that obtains the optimal solution. Moreover, we devise three replacing rules and gain the maximum compaction ratio. The experimental results show that the proposed compaction rule leverages the group motion forms to reduce the amount of delivered data in effect and efficiently.

KEYWORDS: Data compaction, compaction, object chasing.

I. INTRODUCTION

Recent advances in position-skill technologies, such as global positioning systems (GPSs) and wireless sensor networks (WSNs), have furthered many new applications like object chasing, environmental supervising, and position-dependent activity. These applications give a big amount of position data, and thus, lead to communication and storage demand, especially in asset constrained surrounds like WSNs. To decrease the data volume, various rules have been proposed for data compaction and data ingathering. However, the above works do not cover application-level meaning, such as the group relationships and motion forms, in the position data In object chasing applications, many natural developments show that objects often demonstrate some degree of regularity in their motions. For example, the famous yearly wild ebeest event demonstrates that the motions of brutes are temporally and spatially correlated. Biologists also have found that many brutes, such as elephant, zebra, whales, and birds, form big social groups when migrating to find food, or for engendering or wintering. These features indicate that the flight data of multiple objects may be correlated for Biological applications. Moreover, some explore areas, such as the study of creatures' social activity and wildlife event, are more related with the motion forms of groups of animals, not someone's; hence, chasing each object is unneeded in this case. This arouses a new demand of detecting acting animals contains to the same group and discovering their combined group motion forms. Therefore, under the assumption that objects with similar motion forms are regarded as a group, we define the acting object grouping problem as given the motion flights of objects, segmentation the objects into non covered groups such that the number of groups is minimized. Then, group motions form discovery is to find the most representative motion forms regarding each group of objects, which are further utilized to compact position data.
Our contributions are triple:
Different from previous works, we developed an acting object grouping problem that collectively detect a group of objects and find their motion forms. The application-level meaning is useful for various applications, such as data storage and communication, task programming, and network structure.
(1)To approach the acting object grouping problem, we propose an effective disseminated mining rule to minimize the number of groups such that members in each of the detected groups are highly related by their motion forms.

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(2)We propose a novel compaction rule to compact the position data of a group of acting objects with or without loss of information. We develop the CPR problem to minimize the information of position data and explore the Shannon's theorem to solve the CPR problem. We also prove that the proposed compaction rule obtains the optimal solution of the CPR problem efficiently.

II. RELATED WORK

2.1 Motion Form Mining

Agrawal and Srikant first defined the sequential form mining problem and proposed a theoretic-like rule to find the frequent sequential forms. Han et al. consider the form ejection method in mining sequential forms and proposed Free Span, which is an FP-emergence-based rule. Yang and Hu developed a new match measure for general trajectory data and proposed Traj form to mine sequential forms. Many variations derived from sequential forms are used in various applications, e.g., Chen et al. discover path traversal forms in a Web environment, while Peng and Chen mine User acting forms additive in a mobile computing system. However, sequential forms and its variations like do not provide enough information for position prevision or grouping. First, they carry no time information between consecutive items, so they cannot provide accurate information for position prevision when time is pertained. Second, they consider the characteristics of all objects, which make the meaningful motion characteristics of single objects or a group of acting objects invisible and dismissed. Third, because a sequential form lacks information about its implication concerning to each single flights, they are not fully representative to single flights

2.2 Clustering

Grouping based on objects' motion behavior has attracted more attention. Wang et al. translate the position sequences into a transaction-like data on users and based on which to obtain a valid group, but the proposed AGP and VG growth are still Apriori-like or FP-maturation based algorithms that suffer from high computing cost and memory demand. Nanni and Pedreschi proposed a compactness-based grouping algorithm, which makes use of an optimum time interval and the average Euclidean distance between each point of two flights, to approach the flight grouping problem. However, the above works discover global group relationships based on the balance of the time a group of users stay close together to the whole time duration or the average Euclidean distance of the entire flights. Thus, they may not be able to reveal the local group relationships, which are required for many applications. In addition, though computing the average Euclidean distance of two geometric flights is simple and useful, the geometric coordinates are expensive and not always available. Approaches, such as EDR, LCSS, and DTW, are widely used to compute the similarity of symbolic flight sequences, but the above active programming approaches suffer from measurability problem. To provide measurability, approximation or summarization techniques are used to represent original data. Guralnik and Karypis project each sequence into a vector space of sequential patterns and use a transmitter-based K-means algorithm to group objects.

2.3 Data Compaction

Data compaction can reduce the storage and energy consumption for resource-constrained applications. In [1], distributed source (Slepian-Wolf) coding uses joint information to Convert two nodes' data individually without sharing any data between them; however, it requires prior knowledge of cross correlations of sources.

III. APPLICATION-LEVEL MEANING

We have proposed a grouping algorithm to find the group relationships for query and data collection efficiency. The differences of and this work are as follows: First, since the grouping algorithm itself is a concentrated algorithm, in this work, we further consider systematically combining multiple local grouping results into a consensus to improve the grouping quality and for use in the update-based chasing network. Second, when a delay is tolerant in the chasing application, a new data management approach is required to offer communication efficiency, which also motivates this

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study. We thus define the problem of compacting the position data of a group of moving objects as the group data compaction problem. We first introduce our disseminated mining algorithm to approach the moving object grouping problem and bring out group motion forms. Then, based on the discovered group motion forms, we propose a novel compaction algorithm to tackle the group data compaction problem.

Our disseminated mining algorithm makes up a Group Motion forms Mining (GMF Mine) and a Group Ensemble (GE) algorithm. It avoids communicating unnecessary and same data by transmitting only the local grouping results to a base station (the sink), instead of all of the acting objects' position data. Specifically, the GMF Mine algorithm discovers the local group motion forms by using a novel similarity measure, while the GE algorithm combines the local grouping results to remove inconsistency and improve the grouping quality by using the information theory.

3.1Input data

We have found that many brutes, such as elephants, zebra, whales, and birds, form large social groups when moving to find food, or for engendering or Spending. These characteristics indicate that the flight data of multiple Objects may be associated for natural applications. Moreover, some research domains, such as the study of animal's social behavior and wildlife event, are more concerned with the motion forms of groups of animals. These details are given as an input data.

3.2Applying mining Technology

To approach the moving object clustering problem, we propose an efficient distributed Excavation algorithm to minimize the number of groups such that members in each of the discovered groups are highly related by their movement patterns.

3.3Apply compaction technique

We propose a novel compaction algorithm to compact the location data of a group of acting objects with or without loss of information. We formulate the CPR problem to minimize the information of location data and explore the Shannon's theorem to solve the CPR problem. We also prove that the proposed compaction algorithm obtains the best solution of the CPR problem efficiently.

3.4View result

View the data result that the result contains the mined and compaction data. We exploit the characteristics of group motions to discover the information about groups of acting objects in chasing applications. We propose a distributed Excavation algorithm, which consists of a local GMF Mine algorithm and a GE algorithm, to discover group motion forms? With the discovered information, we devise the 2P2D algorithm, which makes up a sequence unite phase and an information reduction phase. In the sequence unite phase, we propose the unite algorithm to merge the location sequences of a group of acting objects with the goal of reducing the overall sequence length.

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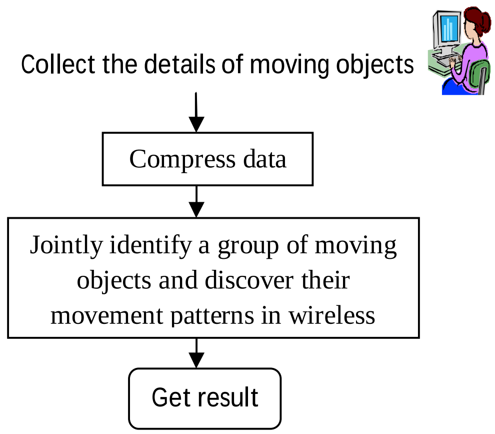

Fig: 1 System process

Exchange algorithm obtains the optimal solution of CPR efficiently. Our experimental results show that the proposed compaction algorithm effectively reduces the amount of delivered data and enhances softness and, by propagation, decrease the energy demand expense for data transmission in WSNs.

IV. SYSTEM IMPLEMENTATION

Our disseminated mining algorithm makes up a Group Motion forms Mining (GMF Mine) and a Group Ensemble (GE) algorithm. It avoids communicating unnecessary and same data by transmitting only the local grouping results to a base station (the sink), instead of all of the acting objects' position data. Specifically, the GMF Mine algorithm discovers the local group motion forms by using a novel similarity measure, while the GE algorithm combines the local grouping results to remove inconsistency and improve the grouping quality by using the information theory.

V. CONCLUSION

In this paper we motivated the trend towards socio-expert systems in SEA. In such surrounds social implications must be handled properly. With the human user in the loop numerous concepts, including individualize, expertness, interest, are floating interests, and social dynamics become of overriding importance. Therefore, we discussed related Web standards and showed ways to extend them to fit the requirements of a people-central Web. In particular, we outlined concepts that let people offer their expertness in a service-oriented mode and covered the preparation, find and selection of Human-Rendered Services. In the future, we aim at providing more fine-granulated supervising and adjustment schemes.

REFERENCES

[1] M. Morzy, "Mining Frequent Trajectories of Moving Objects for Location Prediction," Proc. Fifth Int'l Conf. Machine Learning and Data Mining in Pattern Recognition, pp. 667-680, July 2007.
[2] F. Giannotti, M. Nanni, F. Pinelli, and D. Pedreschi, "Trajectory Pattern Mining," Proc. ACM SIGKDD, pp. 330-339, 2007.
[3] V.S. Tseng and K.W. Lin, "Energy Efficient Strategies for Object Tracki ng in Sens or N etwo r ks: A D ata Min ing Ap proach, " J. Systems and Software, vol. 80, no. 10, pp. 1678-1698, 2007.
[4] L. Chen, M. Tamer O ¨ zsu, and V. Oria, "Robust and Fast Similarity Search for Moving Object Trajectories," Proc. ACM SIGMOD, pp. 491-502, 2005.

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[5] Y. Wang, E.-P. Lim, and S.-Y. Hwang, "Efficient Mining of Group Patterns from User Movement Data," Data Knowledge Eng., vol. 57, no. 3, pp. 240-282, 2006.
[6] M. Nann i and D. Pedreschi, "Time-Focused Clustering o f Trajectories of Moving Objects," J. Intelligent Information Systems, vol. 27, no. 3, pp. 267-289, 2006.
[7] H.-P. Tsai, D.-N. Yang, W.-C. Peng, and M.-S. Chen, "Exploring Group Moving Pattern for an Energy-Constrained Object Tracking Sensor Network," Proc. 11th Pacific-Asia Conf. Knowledge Discovery and Data Mining, May 2007.
[8] C.E. Shannon, "A Mathematical Theory of Communication," J. Bell System Technical, vol. 27, pp. 379-423, 623-656, 1948.