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**OPTIMIZING THE DE-DUPLICATION FOLIAGE IMAGE ACCESS IN STORAGE SYSTEMS**

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**ABSTRACT**

*We are now in the era of the Big Data revolution where nearly every aspect of computer engineering is being driven by large-data processing and analysis. The vast volume of data is used on Personalized Searches in normal or internet applications. Valid of data is important for accessing system without De-duplication. In this paper, we proposed to optimize the de-duplicated data using Map Reduce with the help of similarity based methodology that are used for comparable system. To access the data are in data storage applications using point-to-point process. The experimental results are conducting the probability testing is applied on large data sets on ternary clusters.*

**KEYWORDS**

Big Data, De-Duplication, Foliage Images, Optimize, Point-to-Point, Probability Testing, Ternary.

**INTRODUCTION**

In our daily life, increasing in the business data growth rates is high, rapidly changes in coming years. Likewise, retention and retrieval requirements for new and existing data will expand, driving still more data to disk storage. The trend to larger data sets is due to the additional information derivable from analysis of a single large set of related data, which is forming Big Data. It is a collection of datasets. The data sizes are constantly moving from a few terabytes to many petabytes of data in a single data set. So it becomes difficult to process using on-hand database management tools or traditional data processing applications. With this difficulty, new platforms of "big data" tools are being developed to handle various aspects of immense quantities of data such as web logs, social networks and search indexing. Using key-based word searching we can search for words anywhere in the record.

Keyword searches are useful when we don't have complete information about what we are trying to search. For example it is a good substitute for a title or author search when we have incomplete title or author information. But by using keyword searches we can't suppress the redundant data of many users. There is ever-increasing focus on improving data storage efficiencies across the information infrastructure. Data reduction is a tactic which can decrease the disk storage; network bandwidths required and optimize use of existing storage assets. Deduplication is a well-known technique for data reduction process that means eliminating the redundant data in sequential-access disk and from active-data storage pools. One unique instance of the data is retained on storage media, and redundant data is replaced with a pointer to the unique data copy. The goal of Deduplication is to reduce the overall amount of time that is required to retrieve data by letting you store more data on disk.

The proposed system incorporates large data sets i.e., Big Data by forming three ternary clusters namely, Tag cluster, User cluster and Image data cluster. Also, all the information kept into three clusters. Clusters has played a critical role for pattern recognition, image segmentation i.e., which provides similar objects to create groups in an un-labeled data. Various clustering algorithms are created to define a partitioning of a dataset. It is importance of parameters are assigned an improper value, the clustering method results in a partitioning scheme that is not optimal for the specific data set leading to wrong decisions. The problems of deciding the number of clusters better fitting a dataset as well as the evaluation of the clustering results has been subject of many research efforts

The rest of the paper is organized as follows: Section 1 deals with present surveys of related work. Section 2 offers fuzzy classifications of decision personnel signature dataset. Section 3 contains details about support vector machine. Section 4 presents the study of foliage image using Map Reduce technique. Section 5 discussed the similarity technique applied on foliage image using Map Reduce. Section 6 presents the experimental results obtained. Finally, we conclude the conclusion and future works.

**1. PERSONALIZED SEARCH**

In previously discussed the personalized image search framework by various authors are simultaneously considering user and query information discussed in Learn to Personalized Image Search From the Photo Sharing Websites by Jitao Sang et al., published in IEEE Transaction Multimedia, 2012 [4]. The user's preferences over images under certain query are estimated by how probable he/she assigns the query-related tags to the images. A ranking based tensor factorization model named RMTF is proposed to predict users' annotations to the images. To better represent the query-tag relationship, we build user-specific topics and map the queries as well as the users' preferences onto the learned topic spaces. In this part, three modules are follows

**1.1. USER-SPECIFIC TOPIC MODELING**

User-specific information is considered to distinguish the exact intentions of the user queries and to re-rank the list results. Users may have different intentions for the same query for example; searching for "jaguar" by a car fan has a completely different meaning from searching by an animal specialist.

**1.2. PERSONALIZED IMAGE SEARCH**

In the research community of personalized search, evaluation is not an easy task since relevance judgment can only be evaluated by the searchers themselves. This approach is very expensive and needs large-scale real search logs. Social sharing websites provide rich resources that can be exploited for personalized search evaluation. User's social activities, such as rating, tagging and commenting, indicate the user's interest and preference in a specific document.

**1.3. RANKING**

Photo sharing websites differentiate from other social tagging systems by its characteristic of self-tagging: most images are only tagged by their owners. If any problem occurs to enable information propagation it calls for external resources. Here, in addition to the ternary interrelations, we also collect multiple intra-relations among users, images and tags. We assume two items with high affinities should be mapped close to each other in the learnt factor subspaces. Previous works on these lines were proposed by various authors; Jitao Sang is discussed in Learn to Personalized Image Search from the Photo Sharing Websites, IEEE Transactions on Multimedia vol.14, August 2012[4, 5, 6, and 7].

**2. TERNARY CLUSTER ANALYSIS**

Classification is the set of objects which are assigning to one among a set of pre-defined categories. It is a systematic approach for building classification models from an input dataset. Consider, Entire input personnel signature can be segmented into three clusters i.e., foliage (leaf) character images, users and Tagging. The cluster data is represented in the form of triplets.

Let U, I, T denote the sets of users, Images and Tags. The group of data of a cluster is denoted by  $C \subset U \times I \times T$ , i.e., each triplet  $(u, i, t) \in C$  means that user  $u$  has annotated image  $i$  with tag  $t$ . the ternary interrelations can then constitute a three dimensional tensor  $\gamma \in R^{|U| \times |I| \times |T|}$  is applied on map reduce [10].

**3. SUPPORT VECTOR MACHINE**

Support Vector Machine is a machine learning process. It is defined over a vector space in which the problem is to find a decision surface that “best” separates the data vectors into two classes suggested by Isabelle Moulinier et al., 1997 [4] is discussed the simplest linear form; an SVM is a hyper-plane that separates a set of positive from a set of negative with maximum margin.

The hyper-plane (dot) used on the database images and represented as linear SVMs or it can be found in a higher-dimensional space by transforming the images into a representation having more dimensions like input variables than the whole database in data images are treated as non-linear SVMs. It is used to provide simple solution by mapping the image data into a higher dimensional space and then reducing the problem to a linear.

The purpose of hyper-plane is to separates the training data by a maximal margin. All vectors lying on one side of the hyper-plane are labeled as 0, and all vectors lying on the other side are labeled as 1. The training instances that lie closest to the hyper-plane are called support vectors [1, 4 and 9].

The Linear Support Vector Machine  $S = w \cdot i$  (3.1)

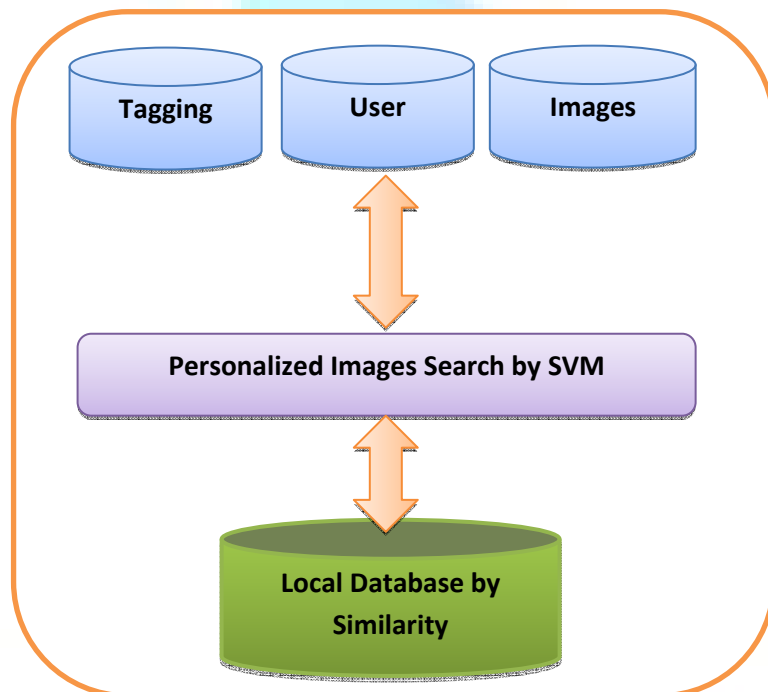
Where  $w$  is the normal vector namely called as database to the hyper-plane, and  $i$  is the input vector is known as Input Data. In the linear case, the margin is defined by the distance of the hyper-plane to the nearest of the positive and negative.

**4. MAP REDUCE BASED T-NARY CLUSTER OPTIMIZATION USING SIMILARITY**

The process requires validation that the target database is clean and contains the non-redundant data, from an identity perspective. The identity de-duplication process involves comparing all records of the image database among them, powered by complex mathematical algorithms that discover the some statistical study of similarity relationships within datasets.

When we send a request from local database to cloud database the requirement of basic algorithm for any recognition can be solved. The interface of classifier with the help of SVM classifier is followed by two classes namely called cloud database and local database by using map reduce classification problem; the goal is to find the image object and store to local database by a function which is induced from the mention figure below.

**FIG: 4.1: MAP REDUCE BASED PERSONALIZED IMAGE SEARCHES USING SIMILARITY**



MapReduce programming model is proposed. MapReduce is a functional programming model that implements for processing and generating large data sets as in [2][3]. It is well-developed technology for distributing and parallelized environments and also working on large data sets. Initially, the user makes a request to the cloud data storage about the triplets. Then the image data produces a set of intermediate key value pairs (images) with the help of map functions written by third party users. The existing cloud data storage is used to calculate the mean value for each image i.e., intermediate key value with the help of image normalization process and feature extraction values. The cloud database consisting of intermediate key values associated with the same intermediate key and passes them to the Reduce function with the help of MapReduce library by SVM classifier. Finally, the user of the reduce function is accepts an intermediate key and a set of values for that key for the database. We compare the mean value with the target image of database with the help of similarity approach to calculate the distances i.e., Euclidean distance.

$$Euclidean\ Distance = \sqrt{\sum_{i=1}^n (x - y)^2} \quad (4.1)$$

**5. EXPERIMENTAL RESULTS**

The experimental Results are produced on personnel signature image cluster datasets uses one of the approach test of Hypothesis ( the estimating the value of a parameter we need to decide whether to accept or reject a statement about the parameter.), which is to generalize the two-sample software reliability testing if the data belong to more than two groups. The product reliability test is conducted on personnel signatures data sets to test for the equality of the means of two or more normal data set and also uses variances.

$$Pobability = \frac{\text{Number of cases when we find failure}}{\text{Total number of cases under consideration}}$$

By using this formula, to calculate the failure probability with the help of testing from input images. To find reliability of software, we need to find the respect is done or not from given input datasets [11].

In the above case tagging, user and images are ternary relations data sets. The three equivalents sample data clusters using searching and comparing purposes. To conduct the test whether check the three equal relations data or not and taking the data are equal or not.



Let  $H_0$  is the sample mean are not equal.

Let  $H_1$  is the sample mean are equal

If  $H_0 = H_1$  then, Display both are Equal mean. So test is accepted.

Otherwise both are Not Equal, so test is rejected.

## 6. CONCLUSION AND FUTURE WORKS

De-duplication is one of the best concepts in Data Storage and it is a kind of Cloud Computing application. In this paper, we describe the cloud storage as image data storage which shows that the proposed method can provide the reliable data, fault tolerant and can improve efficiency and scalability. This approach has several applications such as Intrusion Detection and new technologies like Biometric and Video surveillance Systems, etc. Furthermore, the magnitude of the recognition level of an image which will follow some probability distribution using de-duplication.

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