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MINING USER NAVIGATION PATTERNS FOR EFFICIENT RELEVANCE FEEDBACK FOR CBIR

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ABSTRACT:

In today's modernized world, content based image retrieval (CBIR) is considered as a bastion in image retrieval system. For making CBIR most suitable and productive technique, relevance feedback technique is used in conjunction with CBIR for producing more specific results which are obtained by taking feedback from user. However, existing relevance feedback-based CBIR methods usually request a number of iterative feedbacks for production of best search results, particularly in huge database. But this seems of no use in real world applications. In this paper, we propose a n... method, NRPF (Navigation pattern based rel...ance feedback method is used for enhancing eff...ess and efficiency in CBIR while copying large ... image data. In terms of efficiency, the iterations ... feedback will get reduced dra...ally reduced substantially by using the ...vigat... patterns discovered from the user q...ry log. Effe...veness of our proposed search alg... NPRF Se...ch makes use of the discovered navigati... attern... it also produces query ref...ement strat...h other t... kinds, Query ...Movement ...PM), Query Expansion (QEX) and ...ry Reweigh... (QR), to converge the search ... toward ...ser's intentio... effectively. For thi...pose NPR... systems are used ... increasing quality ... retrieved image. The experi...l shows NPRF o...tperforms other established m...ds consid...ably in terms of precision, coverag... number of feedbacks.

KEYWORDS: Conte... ...ased image retrieval, relevance feedback, qu... point movement, query expansion, navigation pattern mining etc.

INTRODUCTION:

Multimedia contents are growing explosively and the need for multimedia retrieval is occurring more and more frequently in our daily life. Understanding the image has become difficult but that has raised the interest in this domain. Extracting valuable knowledge from a large-scale multimedia repository, so-called multimedia mining, has been studied by few researchers. Typically, in the develo...ment of an image requisition system, semantic ima... retrieval relies heavily on the related captions, ...s, ...gories, file-names, and other manual de...ription... annotated keywords. Unfortunately, ...is kind of ...al-based image retrieval suffers ...om two problem... high-priced manual annot...ion and inappropriate auto...ed annotation.

...ROPOSED SYSTEM:

The p...posed algorithm NPRF Search performs the ...igati...n-pattern-bas...d search to match the user's intent... by merging three ...uery refinement strategies. As a resu... ...ditional p...blems such as visual diversity ...nd explora... ...onve...gence are solved. For navigation-...attern-based s...rch, the hierarchical BFS based KNN is employed to na...ow the gap between visual features and human concepts effectively. In addition, the involved methods for special data partition and pattern pruning ...lso speed up the image exploration. The experimental ...ts reveal that the proposed approach NPRF is very ...ffective in terms of precision and coverage. With short term relevance feedback, the navigation system algorithm will help in assisting the users in obtaining the best results. Moreover, the new search algorithm NPRF Search can bring out more accurate results than other well-known approaches.

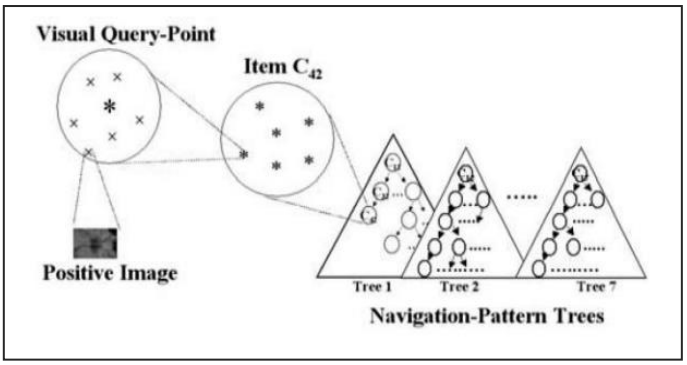

Fig. No.1. Example of navigation pattern trees [18]

WORKING OF THE NRPF METHOD:

INITIAL QUERY PROCESSING PHASE:

Without considering the feature weight, this phase extracts the visual features from the original

query image to find the similar images. Afterward, the good examples (also called positive examples in this paper) picked up by the user are further analyzed at the first feedback (also called iteration 0 in this paper).

IMAGE SEARCH PHASE:

Behind the search phase, our intent is to extend the one search point to multiple search points by integrating the navigation patterns and the proposed search algorithm NPRF Search. Thus, the varied inclusion of the user's interest can be successfully implied. In this phase, a new query point at each feedback is generated by the preceding positive examples. Then, the k-nearest images to the new query point can be found by expanding the weighted query. The search procedure does not stop unless the user is satisfied with the retrieval results

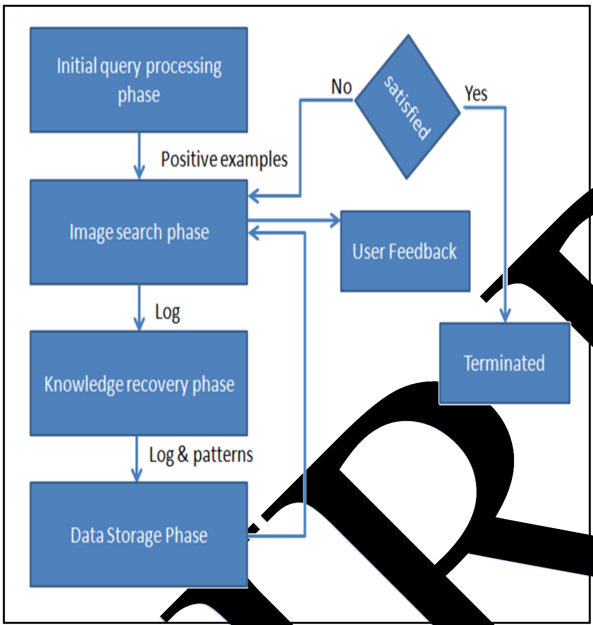

Fig.no.1 Workflow of NRPF method

KNOWLEDGE DISCOVERY PHASE:

Learning from users' behaviors in image retrieval can be viewed as one type of knowledge discovery. Consequently, this phase primarily concerns the construction of the navigation model by discovering the implicit navigation patterns from users' browsing behaviors. This navigation model can provide image search with a good support to predict optimal image browsing paths.

DATA STORAGE PHASE:

The databases in this phase can be regarded as the knowledge marts of a knowledge warehouse, which store integrated, time-variant, and nonvolatile collection of useful data including images, navigation patterns, log files, and image features. The knowledge warehouse is very helpful to improve the quality of image retrieval. Note that the procedure of constructing rule base from the image databases can be conducted periodically to maintain the validity of the proposed approach.

SYSTEM REQUIREMENTS:

HARDWARE REQUIREMENTS:

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Monitor : 15 VGA Color.
- Mouse : Logitech.
- Ram : 512 MB.

SOFTWARE REQUIREMENTS:

- Operating System : Windows xp , Linux
- Language : Java1.4 or more
- Technology : Swing, AWT

CONCLUSION:

The major difference between our proposed approach and other contemporary approaches is that we approximate an optimal solution to resolve the problems existing in current RF such as redundant browsing and exploration convergence. To this end, the approximated solution takes advantage of exploited knowledge (navigation patterns) to assist the proposed search strategy in efficiently hunting the desired images.

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