



# A MULTI-KEYWORD RANKED SEARCH SCHEME OVER ENCRYPTED BASED ON HIERARCHICAL CLUSTERING INDEX

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*Abstract- A Secure and Dynamic Multi-keyword Ranked Search Scheme over Encrypted Cloud Data Due to the increasing popularity of cloud computing, more and more data owners are motivated to outsource their data to cloud servers for great convenience and reduced cost in data management. In this project, present a secure multi-keyword ranked search scheme over encrypted cloud data, which simultaneously supports dynamic update operations like deletion and insertion of documents. Specifically, the vector space model and the widely-used TFIDF model are combined in the index construction and query generation. The proposed hierarchical approach clusters the documents based on the minimum relevance threshold, and then partitions the resulting clusters into sub-clusters until the constraint on the maximum size of cluster is reached. In the search phase, this approach can reach a linear computational complexity against an exponential size increase of document collection. In order to verify the authenticity of search results, a structure called minimum hash sub-tree is designed in this paper. Due to the use of our special tree-based index structure, the proposed scheme can achieve sub-linear search time and deal with the deletion and insertion of documents flexibly. Extensive experiments are conducted to demonstrate the efficiency of the proposed scheme.*

**Index terms:** Searchable encryption, multi-keyword ranked search, dynamic update, cloud computing.