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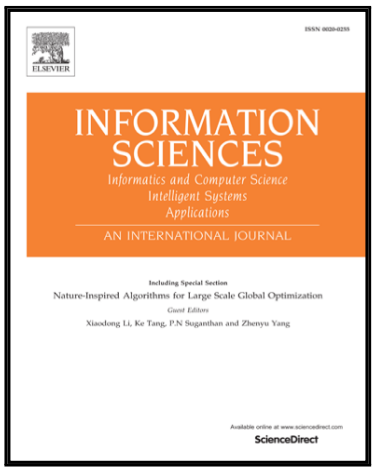

Secure Multi-label Data Classification in Cloud by Additionally Homomorphic Encryption

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Highlights

- For the first time, we formalize the problem of secure multi-label classification in cloud, and define the privacy and efficiency requirements in this problem.
- We propose a secure k-nearest neighbor based multi-label classification scheme, which can correctly complete multi-label classification and preserve the privacy of both data owner and consumers with practical efficiency.
- We formally prove the security of our scheme, which shows our proposed approaches can securely preserve the input instance and output classification results of each consumer, and guarantee the security of the data owner's training dataset and classification model.
- We analyze our computation complexity and communication overheads in detail, and leverage simulation experiments to evaluate the computation time of our proposed scheme.

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