ANALYSIS OF COMPUTATIONAL COMPLEXITY FOR HT-BASED FINGERPRINT ALIGNMENT ALGORITHMS ON JAVA CARD ENVIRONMENT

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Abstract

In this paper, implementations of three Hough Transform based fingerprint alignment algorithms are analyzed with respect to time complexity on Java Card environment. Three algorithms are: Local Match Based Approach (LMBA), Discretized Rotation Based Approach (DRBA), and All Possible to Match Based Approach (APMBA). The aim of this paper is to present the complexity and implementations of existing work of one of the mostly used method of fingerprint alignment, in order that the complexity can be simplified or find the best algorithm with efficient complexity and implementation that can be easily implemented on Java Card environment for match on card. Efficiency involves the accuracy of the implementation, time taken to perform fingerprint alignment, memory required by the implementation and instruction operations required and used.