Comment on "Method of Fingerprint Identification"

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Abstract: Problem statement: Paper that written by Surachai Panich reported matching two fingerprints taken from small database of fingerprints. **Approach:** In this study we used extensive literature review and research publication. We also compare with some best practices that applied in the business and industrial field for matching the fingerprints. **Results:** Surachai Panich used his method only for around one hundred data. However, we found that in the recent research most of the fingerprint problems are explore in million of data. I found some of the literature review are quiet old. Since the advancement of Fingerprint matching is increase very rapidly so the comparison with the recent publication is a must. The comparison has to be in the experimental using million of data as the input. We do not find such experimental result on this paper. **Conclusion/Recommendations:** The paper should explore more in biometrics feature extraction for matching process. The biometrics have analogy to the use of physiological or biological characteristics to measure the identity of an individual. These features are assuming unique to each individual and remain unaltered during a person's lifetime. These features make biometrics a promising solution to the society.

Key words: Fingerprint matching, fingerprint identification, biometric system

INTRODUCTION

Panich (2010) reported about finding out an effective algorithm in order to match two fingerprints taken from database. This study state that fingerprint identification techniques only used in a small database in order to find out an effective algorithm to develop the accuracy in matching process. However I found that in the real application, the fingerprint matching must be in very large database. I argue that in the recent research most of the fingerprint problems are explore in million of data. Biometrics have analogy to the use of physiological or biological characteristics to measure the identity of an individual. These features are assuming unique to each individual and remain unaltered during a person's lifetime. These features make biometrics a promising solution to the society. In traditional access control, the access to the secured area can be made by the use of ID numbers or password which amounts to knowledge based security. But such mode can easily be modified and penetrated by intruders and they can breach the doors of security. In monetary transactions and highly restricted to information zone, these are very serious situation. Thus to overcome the above mentioned issue biometric traits are used (Alfaouri, 2008).

The various biometrics traits available are face, fingerprint, iris, palm print, hand geometry and ear.

Among the available biometric traits some of the traits outperform others. The reliability of several biometrics traits is measured with the help of experimental results (Panich, 2010; Khairul and Osamu, 2010).

The biometric system is basically divided into two modes i.e., unimodal biometric system and multimodal biometric system. In case of unimodal biometric system the individual trait is used for recognition or identification. The most successful applications of image analysis and understanding, face recognition has recently received significant attention, especially during the past several years, for example, recognition of face images acquired in an outdoor environment with changes in illumination and/or pose remains a largely unsolved problem. In other words, current systems are still far away from the capability of the human perception system, research in biometric systems has been increasing significantly due to international insecurity environment. Research groups around the world are developing algorithm and systems based on face, iris, fingerprint, palm print or voice and one other possible biometric source is the ear (Sayeed *et al.*, 2009; Rizon *et al.*, 2006; Galbiati, 1990; Hong *et al.*, 1998; Rehan and Rashid, 2004; Khairul and Osamu, 2010; Tabassi and Wilson, 2005).

Paper that written by Panich (2010) reported about matching two fingerprints taken from small database of

fingerprints. Regarding with Surachai Panich, he used his method only for around one hundred data.

The references also are quiet old since the most recent reference is year 2004. The author also did not mention about the algorithm that he proposed to use.

I found that the author also has to compare with some recent paper that published recently that can be explored to enhance the state of the art of the study such (Yuen *et al*., 2009; Ross *et al*., 2006, Xinjian *et al*., 2006; Sharat *et al*., 2005).

On Part Materials and Method, Panich (2010) also mentioned that the proposed fingerprint identification system focused on four main tasks. But I found on page 1062 only listed three task.

Base on the work of (Gille, 2005; Feng, 2008), the most important part if we work with Fingerprint Identification using large database is the data structured. We have to define effective and efficient data structured that transform from images of database. Surachai Panich did not mention about that in his study.

On the part of the Result, I do not find any experimental result as mention on the abstract. It should be put the performance of the algorithm and compare with other Fingerprint Matching algorithm. Some of the novel fingerprint matching algorithm can also found in (Greenberg *et al*., 2000; Xinjian *et al*., 2006; Sharat *et al*., 2005).

Panich (2010) mentioned on the conclusion that the algorithm reached high accuracy when perform on small database of 100 fingerprint images. I do not find any experimental result for the accuracy experiment. I suggest that the author has not suppose mention it on the Conclusion.

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