



Biometric Compression Based on Images Using OMP and MP Suit Algorithms

¹Dr. D.J. Samatha Naidu, ²M. Venkata Madhu Sudhan

¹Principal, APGCCS, Rajampet, Annamayya, A.P, India

²MCA Department & APGCCS, Rajampet, Annamayya, A.P, India

ABSTRACT

A new fingerprint compression algorithm based on sparse representation is introduced. Obtaining an over complete dictionary from a set of fingerprint patches allows us to represent them as a sparse linear combination of dictionary atoms. First construct a dictionary for predefined fingerprint image patches. A new given fingerprint images, represent its patches according to the dictionary by computing l_0 -minimization and then quantize and encode the representation. In this paper, we consider the effect of various factors on compression results.

Keywords— Fingerprint compression, sparse representation, l_0/l_1 minimization, JPEG 2000, JPEG, WSQ.

I. INTRODUCTION

Large volumes of fingerprints are collected and keep daily in an exceedingly big selection of applications, including forensics, access management etc., and fingerprint square measure evident from the information of Federal Bureau of Investigation (FBI). Fingerprint identification is commonly employed in forensic science to support criminal investigations, and in biometric systems such as civilian and commercial identification devices.

PURPOSE

- a) The proposed method has the ability by updating the dictionary. The specific process is as follows: construct a base matrix whose columns represent features of the fingerprint images, referring the matrix dictionary whose columns are called atoms; for a given whole fingerprint.

SCOPE

- b) To compare different compression standards like JPEG, JPEG-2000, WSQ etc. A new compression standard based on sparse representation also introduced.

II. RELATED WORK

In this section, we compare the proposed method with existing fingerprint compression algorithms like JPEG, JPEG-2000, WSQ, etc. advantages such as simplicity, universality and availability. However, it has the recovery of partial fingerprint from a crime scene is possible. A bad performance at low bit-rates mainly because of the block-based DCT scheme. For this reason, as early as 1995, the JPEG-committee began to develop a new wavelet-based compression standard for still images, namely JPEG 2000.

III. EXISTING WORK

Has a bad performance at low bit-rates mainly because of the underlying block-based DCT scheme. For this reason, as early as 1995, the JPEG-committee began to develop a new wavelet-based compression standard for still images, namely JPEG 2000.

Compared with JPEG, JPEG 2000 provides many features that support scalable and interactive access to large-sized image.

Limitations of existing work

1. The effects of Infectious Diseases are hard to forecast.
2. Statistical methods for medical information are too Heavy.

3. Prediction accuracy is less.
4. Not able to prevent over fitting of data.
5. Data Breaches.

IV. PROPOSED WORK

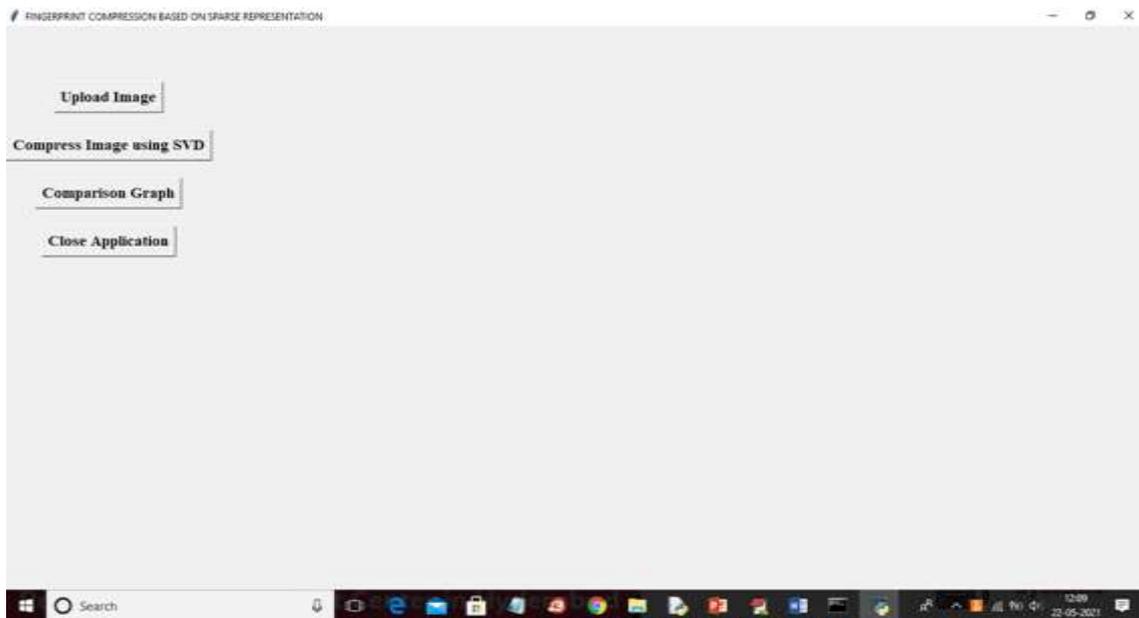
The content of the dictionary is of importance. The importance is embodied in two aspects. On one hand, the dictionary should correctly reflect the content of the images; on the other hand, the dictionary is large enough that the given image can be represented sparsely. These two points are absolutely vital for the methods based on sparse representation.

Contributinal Work

1. Each person has a unique combination and patterns on every finger.
2. Improved Security.
3. Faster Access.
4. Ease to use.
5. Higher Accuracy.

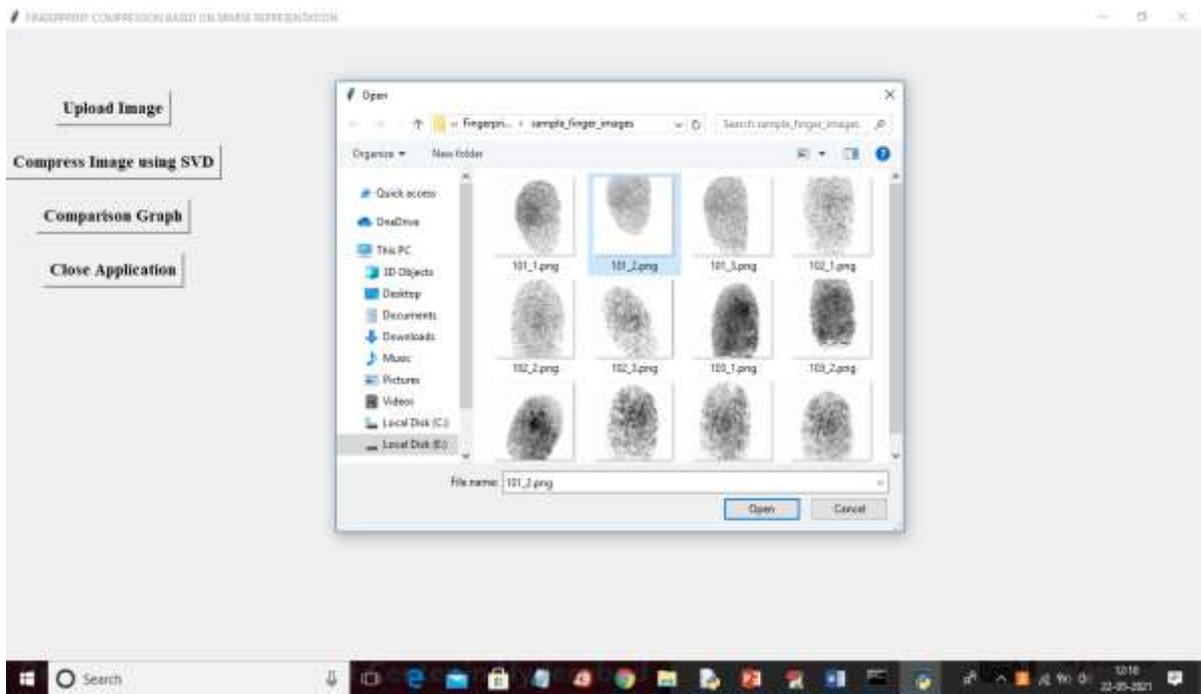
V. Results

To run project double, click on 'run.bat' file to get below screen.



Screen

1: In above screen click on 'Upload Image' button to upload images.



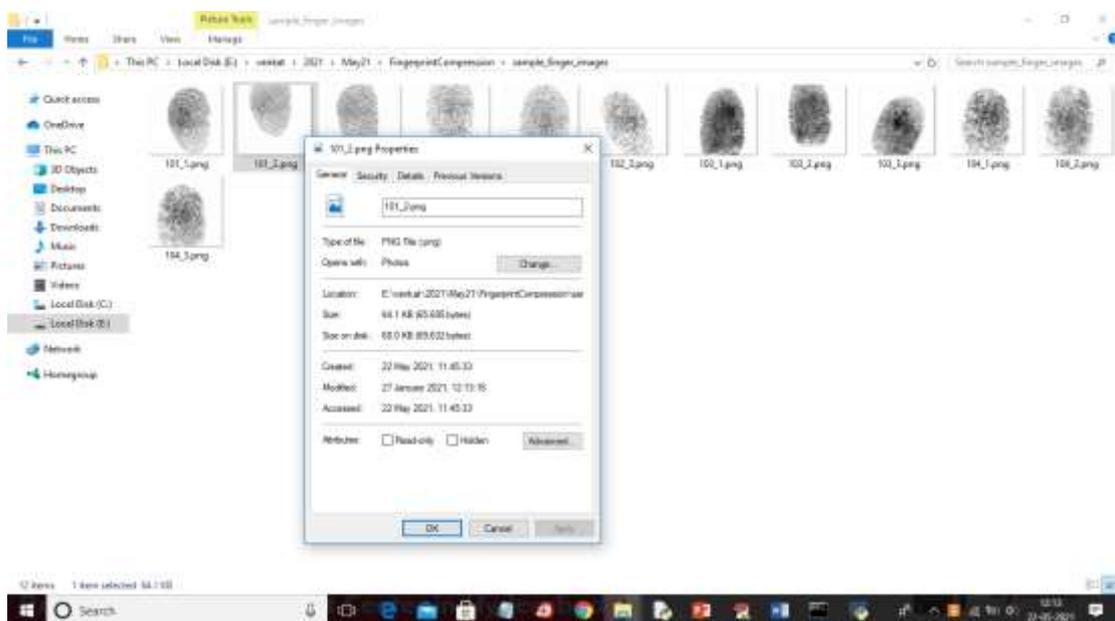
Screen 2: In above screen selecting and uploading '101_2.png' file and then click on 'Open' button to load image and to get below screen.



Screen 3: In above screen image loaded and now click on 'Compress Image using SVD' button to compress image and then will get below screen.



Screen 4: In above screen first image is the original image and in the title bar of image you can see their size in bytes where original image having size as 65695 bytes and SVD compress image size is 14046 bytes and the same size you can see in below image directory.



Screen 5: In above screen for 101_2.png the image size is 64.1 KB and see the same image size in compress folder after compression.

VI. CONCLUSION

In today's modern world, autonomous systems play an important role in our day to day life. As the social computerization and automation have drastically increased, it can be seen evidently where the number of ATM centers increases rapidly. Most civilians use ATM's regularly. A good example can be a financial transaction, ease of money exchange etc. So there exists an important factor called security.

Future work

There are many intriguing questions that future work should consider. First, the features and the methods for constructing dictionaries should be thought over. Secondly, the training samples should include fingerprints with different quality (“good”, “bad”, “ugly”). Thirdly, the optimization algorithms for solving the sparse representation need to be investigated. Fourthly, optimize the code to reduce complexity of our proposed method. Finally, other applications based on sparse representation for fingerprint images should be explored.

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