IMPACT: International Journal of Research in Engineering & Technology (IMPACT: IJRET)
ISSN(E): 2321-8843; ISSN(P): 2347-4599
Vol. 3, Issue 6, Jun 2015, 73-76

REVIEW PAPER ON PASSPORT PHOTO COMPRESSION TECHNIQUES

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ABSTRACT

There is increasing demand for international travelling and it solely depends on passport based identity proof. Passport images are these days stored in database and whenever required are fetched from these databases. Due to fast and ever increasing demand of such facility passport image storing has got special attention. This paper is review paper for application of passport image storing with minimum space requirements and minimum losses during compression process at the time of storing them.

KEYWORDS: Passport Photo, Compression Techniques

INTRODUCTION

Review

Lossy to lossless compression techniques are to be developed for better viewing and presentation of images where redundancy as well as image quality parameters are important. For this purpose we analyse following list of papers.

Baback Moghaddam and Alex Pentland [1], presented a fully automatic system for 2D model-based image coding of human faces for potential applications such as video telephony, database image compression, and face recognition. The system operates by locating a face in the input image, normalizing its scale and geometry and representing it in terms of a compact parametric image model obtained with a Karhunen-Loeve basis. This leads to a compact representation of the face that can be used for both recognition as well as image compression. The advantage is that good-quality facial images are automatically generated using approximately 100-bytes worth of encoded data. The standard detection paradigm in image processing is that of simple normalized correlation or template matching. This approach however is only optimal in the case of a deterministic signal embedded in white Gaussian noise. When we begin to consider a target class detection problem - e.g., finding a generic human face in a scene - we must incorporate the underlying probability distribution of the signal of interest. Subspace methods, such as Karhunen-Loeve expansions, allow for the compact representation of the statistical variability of the signal model and lead to much more robust signal detection schemes.

Jun Hou1, Ran Li, Yan Cheng, Haojie Shi [2], have indicated in their paper the technique for compressing passport images. They have indicated the method for extracting the body object from passport image and storing it by compressing using JPEG 200 and MAXSHIFT method for less memory requirements for keeping maximum visual quality. Advantages of the system is that good-quality facial images are automatically generated using approximately 100-bytes worth of encoded data. The result of the system has been successfully tested on a database of nearly 2000 facial photographs. The drawback is that Lossy compression decreases image quality at the time of decompression. For facial feature extraction is based on the observation that in intensity color images, facial features differ from the rest of the face

because of their low brightness. In case of the eyes, reasons for that are the color of the pupils and the sunken eye sockets. The light red color of the lips emphasizes the mouth against its surrounding region. Thus come to the idea of applying intensity information in the interior of the connected components. The proposal algorithm enhances facial features by applying greyscale erosion and an extreme sharpening operation.

Kohei Inoue and Kiichi Urahama [3], have presented, dyadic singular value decomposition (DSVD) which gives a near-optimal dimensionality reduction of a set of matrix data and apply it to image compression and face recognition. The DSVD algorithm is derived from the higher-order singular value decomposition (HOSVD) of a third-order tensor and gives an analytical solution of a low-rank approximation problem for data matrices. Advantage is that Computational complexity is less compared with other methods. Result is improvement in processing speed in dimensionality reduction and compression. Drawback is that leads to lossy compression and decreases image features at the time of compression.

Tamir Hazan Simon Polak Amnon Shashua [4], have shown an algorithm for a non-negative 3D tensor factorization for the purpose of establishing local parts feature decomposition from an object class of images. Experiments on using the local parts decomposition for face detection using SVM and Adaboost classifiers demonstrate that the recovered features are discriminatory and highly effective for classification. Advantage is that efficient image factorization is obtained. Result indicates Improves local features in different parts of the image. Drawback seen is complexity is more and requires more time for image enhancement.

Ana Ramirez, Gonzalo R. Arce, Brian M. Sadler [5], have indicated in their paper The proposed method in this paper first uses the compressive measurements to find a sparse vector representation of each pixel in a 3-D dictionary formed by a 2-D wavelet basis and a known spectral library of end members. The sparse vector representation is estimated by solving a sparsity-constrained optimization problem using an algorithm based on the variable splitting augmented Lagrangian multipliers method. This system has advantage that during simulations with synthetic hyper spectral cubes illustrate the accuracy of the proposed unmixing method. The result obtained includes the performance of the proposed spectral unmixing method is improved by taking optimal compressive measurements obtained when optimal coded apertures are used in the optical system. Also drawback of this method is suitable for whole image compression and facial part is not focused

Zia-ur Rahman, Daniel J. Jobson,Glenn A. Woodell [6], have developed the Retinex concept into a full scale automatic image enhancement algorithm—the multiscale Retinex with color restoration (MSRCR)—which combines color constancy with local contrast/lightness enhancement to transform digital images into renditions that approach the realism of direct scene observation. This system has advantage that it provides actual image presentation by decreasing distortion. Also drawback of system is it can prove up to certain limit of improvement and depends on human eyes sensitivity parameter.

CONCLUSIONS

By referring these available literatures we can conclude that there is still demand for passport images processing for lossless compression and maximum compression facilities.

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