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High Resolution Image Construction

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ABSTRACT—Data deduplication is a technique for eliminating duplicate copies of data, and has been widely used in cloud storage to reduce storage space and upload bandwidth. However, there is only one copy for each file stored in cloud even if such a file is owned by a huge number of users. As a result, deduplication system improves storage utilization while reducing reliability. Furthermore, the challenge of privacy for sensitive data also arises when they are outsourced by users to cloud.Aiming to address the above security challenges, this paper makes the first attempt to formalize the notion of distributed reliable deduplication system. We propose new distributed deduplication systems with higher reliability in which the data chunks are distributed across multiple cloud servers. The security requirements of data confidentiality and tag consistency are also achieved by introducing a deterministic secret sharing scheme in distributed storage systems, instead of using convergent encryption as in previous deduplication systems. Security analysis demonstrates that our deduplication systems are secure in terms of the definitions specified in the proposed security model. As a proof of concept, we implement the proposed systems and demonstrate

I. INTRODUCTION

Single image super resolution(SISR), a greatly challenging task of computer vision and machine learning, attempts to reconstruct a high-resolution(HR) image froxm a low resolution(LR) image. Low resolution images are in the range of 72dpi to 150dpi, and they have an RGB color setting. Even though low resolution photos can look great on screen, they can become blurry when printed. low resolution images have many uses, and they are mostly found on the web, social media networks, etc. They are not intended for printing because the final result can be blurry or pixelated regardless of how they look on screen. Any image at and above 300 dpi is high resolution photo. That is the desired resolution for clear, high-quality images. low resolution images are going to look pixelated, blurry and not as clear-cut as high resolution images. High resolution images are needed for print design in order to produce crisp, clear images. The higher the resolution, the better is the quality of the digital image. High resolution images are crucial for printing, high-end graphic designs, and any purpose where a high-quality image is required. Super resolution(SR) is commonly divided into two categories based on their tasks, namely generic image SR and class-specific image SR. The former takes little class information into account, which aims to recover any kinds of high resolution image from corresponding low-resolution image. In general, the latter usually refers to face image super resolution or face hallucination if the class is face. Face image super resolution or face hallucinatio is an important branch of super-resolution(SR). The great distinction between the both techniques is that face hallucination always employs typical facial priors (eg. Face spatial configuration and facial landmark detection) with strong cohesion to face domain concept.

II. LITERATUREREVIEW

Fast face hallucination with sparse representation for video surveillance:

In this paper we propose a novel face hallucination algorithm to synthesize a high-resolution face image from several low-resolution input face images. As described in Liu et al. [8]'s work, face hallucination uses two models: a global parametric model which synthesizes global face shapes from eigenfaces, and a local parametric model which enhances the local high frequency details. We follow a similar process to develop a robust face hallucination algorithm. Firstly, we obtain eigenfaces from a number of low resolution face images extracted from a video sequence using a face tracking algorithm. Then we compute the difference between the interpolated low-resolution face and the mean face, and use this difference face as the query to retrieve approximate sparse eigenfaces representation. The eigenfaces are

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combined using the coefficients obtained from sparse representation and added into the interpolated low-resolution face. In this way, the global shape of the interpolated low resolution face can be successfully enhanced. Secondly, we improve the example-based super-resolution method for local high frequency information enhancement. Our proposed algorithm uses the Approximate Nearest Neighbors (ANN) search method to find a number of nearest neighbors for a stack of queries, instead of finding the exact match for each low frequency patch as presented. Median filtering is used to remove the noise from the nearest neighbors in order to enhance the signal. Our proposed algorithm uses sparse representation and the ANN method to enhance both global face shape and local high frequency information while greatly improving the processing speed, as confirmed empirically.

Deep cascaded bi-network for face hallucination:

We present a novel framework for hallucinating faces of unconstrained poses and with very low resolution (face size as small as 5pxIOD). In contrast to existing studies that mostly ignore or assume pre-aligned face spatial configuration (e.g. facial landmarks localization or dense correspondence field), we alternatingly optimize two complementary tasks, namely face hallucination and dense correspondence field estimation, in a unified framework. In addition, we propose a new gated deep bi-network that contains two functionality-specialized branches to recover different levels of texture details. Extensive experiments demonstrate that such formulation allows exceptional hallucination quality on in-the-wild low-res faces with significant pose and illumination variations.

A comprehensive survey to face hallucination :

This paper comprehensively surveys the development of face hallucination , including both face super-resolution and face sketch-photo synthesis techniques. Indeed, these two techniques share the same objective of inferring a target face image (e.g. high-resolution face image, face sketch and face photo) from a corresponding source input (e.g. low-resolution face image, face photo and face sketch). Considering the critical role of image interpretation in modern intelligent systems for a authentication, surveillance, lawenforcement, security control, and entertainment, FACEHALLUCINATION has attracted growing attention in recent years. Existing FACEHALLUCINATION methods can be grouped into four categories: Bayesian inference approaches, subspace learning approaches, with combination of Bayesian inference,subspace learning approaches, and sparse representation-based approaches. In spite of achieving a certain level of development, Face Hallucination is limited in it's success by a complex application conditions such as variant illuminations, poses, views. This paper provides a holistic understanding and deep insight into FACEHALLUCINATION, and presents a comparative analysis of representative methods and promising future directions.

III. METHODOLOGY

In systems engineering and requirements engineering, a non-functional requirement is a requirement that specifiescriteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrastedwith functional requirements that define specific behavior or functions. Non-functional requirements addtremendous value to business analysis. It is commonly misunderstood by a lot of people. It is important forbusiness stakeholders, and Clients to clearly explain the requirements and their expectations in measurable terms. If the non-functional requirements are not measurable then they should be revised or rewritten to gain better clarity.

For example, User stories help in mitigating the gap between developers and the user community Agile Methodology.

Usability:

Prioritize the important functions of the system based on usage patterns. Frequently used functions should be tested for usability, as should complex and critical functions. Be sure tocreate a requirement for this.

IV. IMPLEMENTATION

MODULES

- Numpy
- Matplotlib
- Scikit-Learn

Numpy

Numpy is a general-purpose array-processing package. It provides a high-performance multidimensional array object, and tools for working with these arrays.

It is the fundamental package for scientific computing with Python. It contains various features including these important ones:

- A powerful N-dimensional array object
- Sophisticated (broadcasting) functions

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- Tools for integrating C/C++ and Fortran code
- Useful linear algebra, Fourier transform, and random number capabilities

Besides its obvious scientific uses, Numpy can also be used as an efficient multi-dimensional container of generic data. Arbitrary data-types can be defined using Numpy which allows Numpy to seamlessly and speedily integrate with a wide variety of databases.

Matplotlib

Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms. Matplotlib can be used in Python scripts, the Python and IPython shells, the Jupyter Notebook, web application servers, and four graphical user interface toolkits.Matplotlib tries to make easy things easy and hard things possible. You can generate plots, histograms, power spectra, bar charts, error charts, scatter plots, etc., with just a few lines of code. For examples, see the sample plots and thumbnail gallery.

For simple plotting the pyplot module provides a MATLAB-like interface, particularly when combined with IPython. For the power user, you have full control of line styles, font properties, axes properties, etc, via an object oriented interface or via a set of functions familiar to MATLAB users.

Scikit – learn

Scikit-learn provides a range of supervised and unsupervised learning algorithms via a consistent interface in Python. It is licensed under a permissive simplified BSD license and is distributed under many Linux distributions, encouraging academic and commercial use. Python

Python is an interpreted high-level programming language for general-purpose programming. Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace.

Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural, and has a large and comprehensive standard library.

- Python is Interpreted − Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- Python is Interactive − you can actually sit at a Python prompt and interact with the interpreter directly to write your programs.

Python also acknowledges that speed of development is important. Readable and terse code is part of this, and so is access to powerful constructs that avoid tedious repetition of code. Maintainability also ties into this may be an all but useless metric, but it does say something about how much code you have to scan, read and/or understand to troubleshoot problems or tweak behaviors. This speed of development, the ease with which a programmer of other languages can pick up basic Python skills and the huge standard library is key to another area where Python excels. All its tools have been quick to implement, saved a lot of time, and several of them have

V. RESULT ANALYSIS

This section describes the results observed after implementation of the pythoncode with the proposed system.

Fig 6.1. Main Page

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This figure shows the main page of our project.Where user needs to click on resolute button inorder to add image to convert into high resolution image.

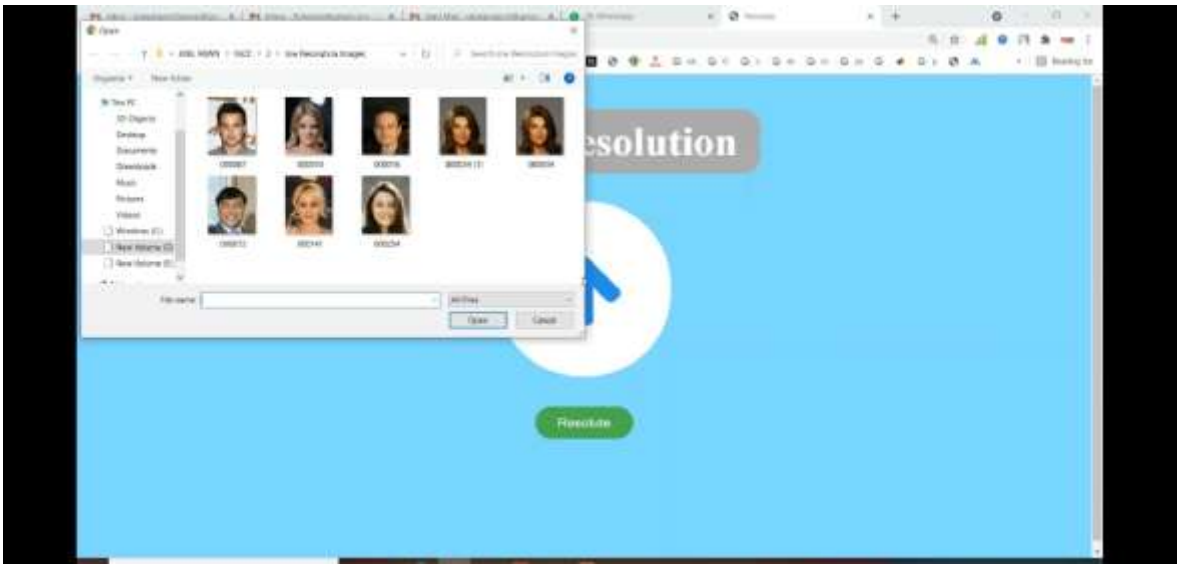

FIG 6.2.Image Selection

In this the user needs to select an existing image from his system.

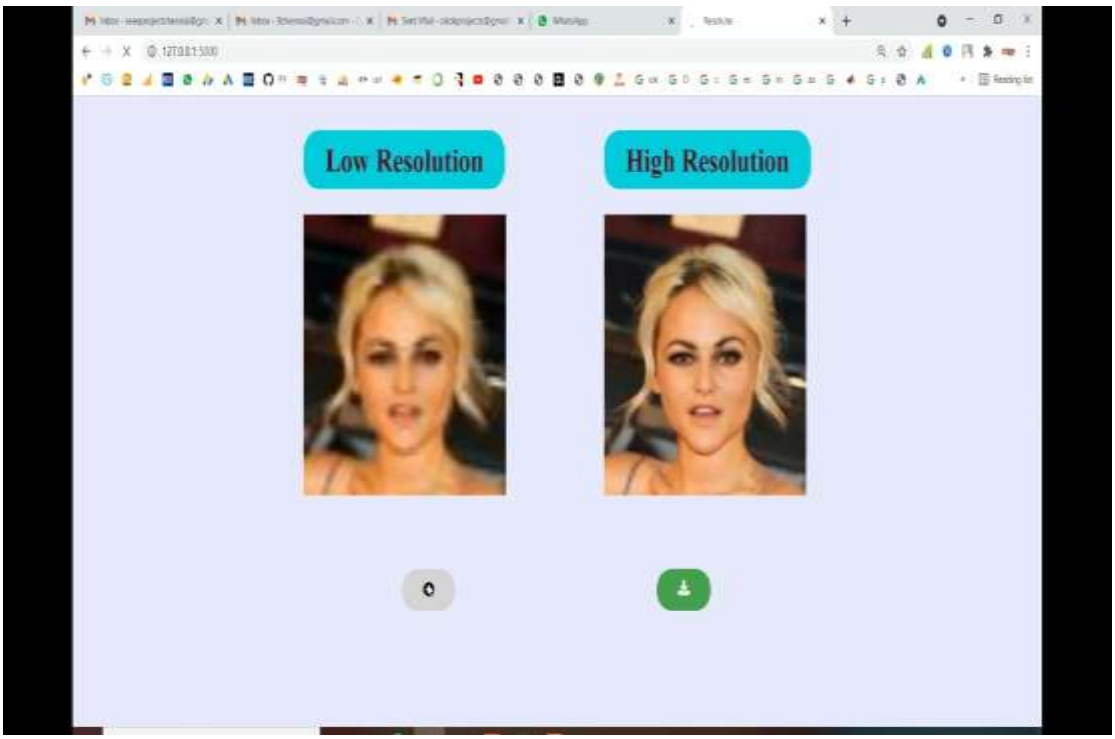

FIG 6.3. Image Converted

In this the exiting image gets converted into high resolution image.It also contains a download button in order to download/Save the image into his system.

VI. CONCLUSION

This System stands effective method to reconstruct various quality of images , all the images will not have accurate pixel dimensions some might be with low and some might be high so this system can intensify the low resolution images to high resolution images so that the picture will have standard gradient properties than the earlier state of the picture . this system has the capability to enhance images until 70 % of the present state of the image , but this applies basing on the current state of the image.

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