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AN EFFICIENT SFS BASED ON FACE TRACKER USING IMAGE PROCESSING SYSTEM

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Abstract— *To perform tracking in an illumination insensitive feature space, called the gradient logarithm field (GLF) feature space. The GLF feature mainly depends on the intrinsic characteristics of a face and is only marginally affected by the lighting source. The GLF feature is a global feature and does not depend on a specific face model, and thus is effective in tracking low-resolution faces. By using the GLF face tracking system, the modified image like editing image did not recognition. To overcome this problem, we propose, to find the original image of the editable image by using the outline dimension of the image. To recognition original face from the modified face, we track the inclusive (complete) region of the face. The SFS (Shape from Shading) is used to recover the shape of the face and then find the face after comparing the faces. This project propose a low resolution image to modified recognition original image with SFS techniques and which now are considering illumination variation to perform image-based tracking, which relies on the selective integration of a small subset of pixels that contain a lot of information about the state variables to be estimated. The resulting dramatic decrease in the number of pixels to process results in a substantial speedup of the basic tracking algorithm. We have used this new method within company, a surveillance application, where it will enable new capabilities of the system, i.e. real-time, dynamic background subtraction from a panning and tilting camera.*
Keywords: *Face tracking, Shape from Shading, Illumination variations, low-resolution faces*

I. INTRODUCTION

One of the fundamental tasks of real-time processing has been image-based tracking through a video sequenceusingaparametricmotionmodel.Thisincludesbothtrackingofamovingobjectthroughan image sequence as well as registering of whole images toa reference view to provide software videostabilization. In this paper we will provide a SFS algorithm to perform image-based tracking, based upon the following observation: Usingonlyasmallpercentageoftheavailablepixels, selectedontheirinformationcontent with respect to the state variables, yieldsa tracking algorithm that is as accurate as conventional tracking algorithms the t use entire images or image pyramids, yet orders of magnitude faster. This observation relies on the fact that only very few pixels actually contribute towards the shaping of theerrorfunctionthatisminimized.Inthecaseoftracking, this is typical yaweighted sum of square errors dependent on the parameters to be estimated. In the neighborhood of the minimum, the shape of the error function is governed by its Hessian. The goal of SFS (Shape from Shading) research is to recover the image shape of an object from a single image. We propose an algorithm that transforms the general SFS to one of estimating the shape of an object with unit illuminant variation that can be addressed using a standard SFS approachWeareconvincedthatthesepreliminaryperformancefigurescanyetbeimprovedupon, aspart of our research code still runs within MATLAB. We are currently porting the entire algorithm to C++. We would have to try different ways to illumination variations of night time camera variations and Day time camera variations. For recognition purposes, we model the appearance changes between frames and gallery images by constructing the intra- and extra-personal spaces. Accurate recognition is achieved when confronted by pose and view variations

II. RELATED WORK

Our work is related to SFS and depth map enhancement. Recent advancesinSfS aimtorelax strict assumptions aboutlightingand repentance. In,inherent complexity of natural illumination actually beetsshapeestimationinsteadofintroducinggreaterambiguity.Theirworkusesareferencesphere

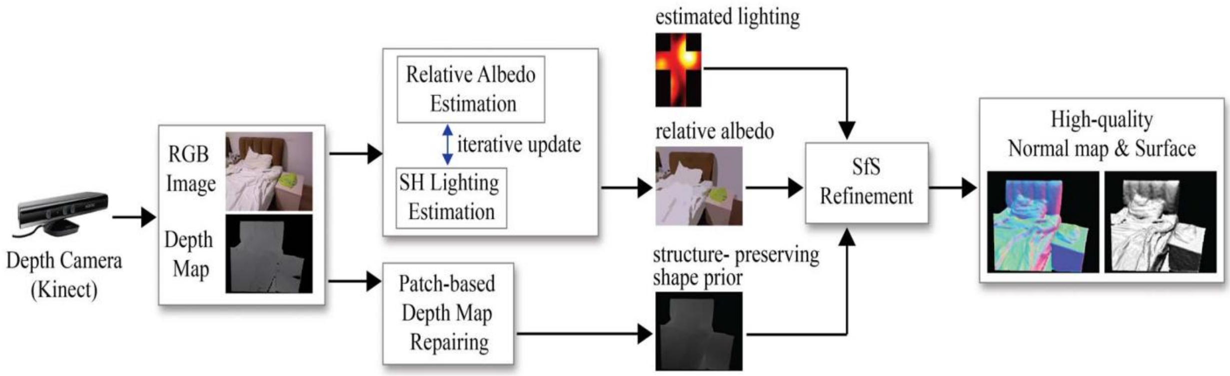

Fig.1 Flow Chart of SFS Approach

Depth-assisted SFS Approach

To facilitate SFS our approached utilizes partial depth information to separate shading from albedo and illumination estimation and resolve surface normal ambiguity. No assumptions are made on the incident illumination or surface geometry. While the reflectance in the scene is taken to be Lambertian.

Overview

Displays flowcharts of our algorithm. From the input RGB image and dept map, our method first computes a normal moa from the captured depth map and segments the RGB image into regions are calculated and the environments illumination is estimated from the albedo normalized

Symmetric SFS Algorithms and Experiments

In this section, we propose several simple computational algorithms to recover both shape and albedo based on the results. We also carry out experiments using synthetic data and real images to test these algorithms. In the case of synthetic data, we obtain perfect recovery (up to numerical round-errors) for partial derivatives. Due to this reason, we do not plot the true partial derivatives and the recovered partial derivatives for comparison. Readers may notice that the shape recovery around because our method of computing V_0 region is not perfect. This is not accurate enough.

Algorithm I

Compute T values at all image points and determine the zero locations based on thresholding. This procedure generates the V0 Set. If the set V empty, then step 2 can be omitted and the whole image plane is denoted by R0. Use component-connection algorithms to label the connected regions separated by

V0: R I (I=1, m).

For each labeled region R I (I=1, m), the choice between q is based on comparing two values.

III. SYSTEM MODEL

Here, the proposed system model and followed some rules are described in detail

The proposed system, we find the original face of the custom-made (modified) image. For example, the original image was modified by changing the eyes etc., to track the authentic (true) face by comparing the outline dimension of both original and modified face. The proposed system, not only describe the small region of the face but also, it describe a complete region of the face. So, it is easy to track the original face.

There are different Module used in this proposed system and they are image segmentation, Illustration variation, shape recovery and structural matching to uses of Object recognition, occlusion boundary estimation of our lighting sources

1. Image Segmentation

Segmentation is the process of partitioning a low resolution image into semantically interpretable regions. Image segmentation is the partition of an image into a set of non-overlapping regions whose union is the entire image. The purpose of segmentation is to decompose the image into parts that are meaningful with respect to a particular application. Segmentation could be used for object recognition, occlusion boundary estimation within motion

2. Illumination variations

A straightforward method of handling illumination variations is to separate the lighting source from image and extract the intrinsic features to characterize the face. However, it is an ill-posed open problem that may need additional models for the face, which is not applicable to low-resolution image. We show that under some reasonable assumptions, the performance degradations caused by lighting source changes can be alleviated.

2. Shape Recovery

Shape is another intrinsic property of an object which is invariant to changes in pose and illumination conditions. The importance of estimating the shape of an object has probably been the guiding force behind the vast amount of work that has been done to recover shape from images. The goal of SFS (Shape from Shading) research is to recover the image shape of an object from a single image

. We propose an algorithm that transforms the general SFS to one of estimating the shape of an object with unit illuminant variation that can be addressed using a standard SFS approach.

4. Structural matching

ASM (Active Shape Model) is used for Structural matching. More robust under shape or image intensity variation. Statistical model representing the shape of faces: Point distribution model with N points Local appearance model for each point based on image gradient, Point and local appearance distributions learned by applying PCA(Principal Component Analysis) to a set of annotated images, The face can be expressed as the sum of a mean shape and a linear combination of basis shapes. Iterative fitting to find the points that best match the local appearance distributions under constraints imposed by shape.

5. Tracking with Other Face Variations

Face variations other than changes in illumination (such as changes in pose, expression and occlusion) will also change the appearance of the face being tracked which may cause the tracker to fail. The adaptive learning model in the particle filter framework can help to address such face variations. Finally, we track the original image by comparing the illumination variation images with other faces that are stored in image storage. The Structural matching face is also compare with other faces.

IV. ARCHITECTURE

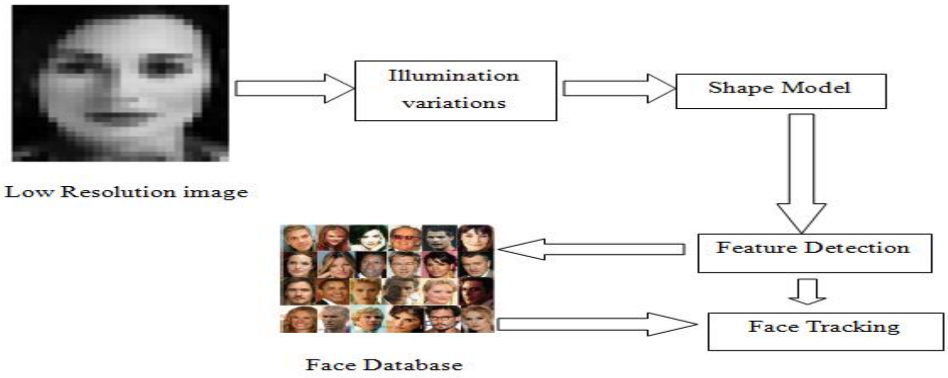

Fig 2.System Architecture

V. CONCLUSION

In this paper, we address the problem of tracking a low resolution face subject to illumination changes and shape model. This paper possesses a desirable property is it does not depend on a specific face model. Advantages of the active shape model techniques are their simplicity and applicability for use in conjunction with other methods. Another estimation framework is developed to reduce the general problem of recovering shape of an object with varying unknown illuminant variation to the one that can be addressed by the traditional SFS approaches.

REFERENCES

[1] B. Bambino, M. Yang, and S. Belonged, "Visual tracking with online multiple instance learning," in 2011.
[2] S. Staler, H. Grabber, and L. Van Goal, "Beyond semi-supervised tracking: Tracking should be as simple as detection, but not simpler than recognition," in 2009.
[3] S. Zhou, R. Chellappa, and B. Moghaddam, "Visual tracking and recognition using appearance-adaptive models in particle filters", in 2008.
[4] T. Ahonen, A. Hadid, and M. Pietikainen, "Face description with local binary patterns: Application to face recognition," in Dec.2006.
[5] H. Grabner, M. Grabner, and H. Bischof, "Real-time tracking via on-line boosting," on 2006.
[6] G.Prakash, Smart Stego card Based on two factor Authentication by using Image Processing," on 20012