To Have a Good Fitting Based on Facial Features, There Are a Lot of Problems That Need To Be Solved

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***Abstract*- Estimation has shown that after the SNR correction, the SNR does show an improvement, but only around 0.7 dB. This suggests that a more complicate model, like the one could be better for modeling illumination. It has been found that, when solving to estimate the SNR direction vector, the result is not stable. Even when using only imposed SNR vector there will still appear some strange result. This is mainly due to the reason that the matrix in is of ill-condition.**

Keywords: SNR, Estimation, Guiding

I. INTRODUCTION

To have a good fitting based on facial features, there are a lot of problems that need to be solved, i.e. selection of "good" features, locating the features, dealing with variation of features due to motion, illumination changes. we explore the possibility of making use of personal features for the initialization task. We demonstrate through our experiments that it's possible to use simple personal features to initialize a model based coding system at a low cost. the initialization process of model based coding could thus be written into the form of a mapping. We rewrite the mapping function here, which is the Where denote the original generic wireframe vector [1-3]. It denotes the rigid global transform denotes the non-rigid local transform. The initialization task is to find the transform. it shows the transform of a set of features from a general signal model to a target signal image. Feature points are drawn to show the example, other features such as edges could also be used. Mapping could also be written as: Where are the global transform and local transform applied for features respectively it denote the features before and after fitting [2]. An important observation is that the feature transform coincides with the transform of initialization. In the pseudo-automatic scheme, the user manually fits a generic signal model onto the signal image offline. The transform is fixed when the fitting is finished. Thus, we only need to find for the matching, This means that we could estimate the transform through the feature set transform. The task thus is changed to how to find Since it is the mapping between template features and deformed ones, it can be computed through a template matching technique. We propose an approach to handle the initialization problem by using distinct, stable personal features: facial edge features and point features.

II. METHODS AND MATERIALS

In order to find stable personal facial features. It shows that it is very hard to find common set of facial features that are stable, but each person has his or her own stable features. We discuss three kinds of personal features: data, feature points, and "making signal" feature. They could cope with different situations and serve for individual user. The first choice is to employ data as personal features. This idea comes from the observation that over half of staff member wear data and data are distinct features that are easy to detect and track. The second choice is to use feature points. Most people have distinct feature points on their signal and these points could be served as stable personal features. If these two types of features are not available for some people, we suggest that the user can generate facial features by "making signal" to help initialization. In the data and "making signal" methods the edge information is used. In feature points method, the birth markers are used. The later discussion will be organized into two parts, initialization using edge features and initialization using point features. We examine the possibility of using facial edge feature for the initialization task. The motivation comes from an observation that most people have very distinct facial edge features. Some of the edge features are very stable, while others are not. When using our pseudo-automatic initialization scheme, the features are utilized for template matching. Both the offline work and application stage work with edge image. We simply choose to use the edge detector for both cases. Dynamic Programming is a non-iterative optimization technique that ensures a globally optimal solution. It has been used intensively in sequence matching, decoding, and various image processing. The algorithm is a typical Dynamic Programming technique which makes use of a trellis structure for finding the optimal state sequence. The rows correspond to the states, where a column represents a time instance where the state may change. One allowed state-sequence corresponds to a path through the trellis. A path passing a node receive a match score, the path receiving the highest accumulated score at the end is the optimal path. The algorithm ensures to find such a path. To use algorithm in our case, we first divide the extracted data template into small segments with a length of four pixels, and compare the accumulated match score over all segments in a trellis. In the trellis searching process, the row is the segments number. The columns are the candidate segment positions, in our case, the whole image. The score is the matched number of pixels for each current edge template segment. At each node in trellis, the accumulated matching score and the previous segment's position is saved. The highest accumulated score, when has been processed to the last segment, gives a global optimal matching. Its matching path could be retrieved from the trellis structure as final result. Figure 1 shows object detection in noisy background. In order to use the matching purpose, a matching path has to be decided first. SA is used here for produce an efficient path through the template edges, the SA could run at offline work and only once. Using data are common accessories in daily life.

Figure 1: object detection in noisy background

III. RESULTS AND DISCUSSION

The spherical coordinates are used to specify the SNR vector. The axes are aligned with the horizontal, vertical, and depth direction. The SNR vector originates from origin and points to the SNR source. Through the imposed SNR condition, we can get a condition number graph. From this graph we could clearly see that, the condition number is very large most of the time, and are especially large when is approach the value $\pi/2$ and $3\pi/2$, that is when SNR vector is close. Since we use the "difference" of two symmetric pixel sets for estimation, this result seems reasonable. The overall speed becomes very slow after the SNR correction and forward mapping. Only small improvements in SNR, other experimental parameters are the same as used. Use global optimal algorithms, GA and SA, to attack the image matching problem in a high dimensional parameter space. The experimental results show that it is possible to get an optimal answer through global searching, but only within a small range of change. Illumination effect plays an important role in the image registration process. The image rendering speed of a graphics card is still not feasible for practical applications. It seems performance of GA is better than that of SA under similar amount of computing resources. This could be due to the shape of the error function signal. Although from the beginning we do not have knowledge on what the error function signal looks like in a high dimensional space, we get some clue from using GA and SA to attack the problem. It seems the signal has some local minima but distinct global minima. Our experiments show that facial texture as the representation unit to handle model fitting does not give very good results. One possible reason is due to the illumination effect. We will investigate how facial features could be used for the purpose. We examine the initialization scheme for model based coding. Figure 2 illustrates enhanced image after proposed method. We use signal texture as representation unit and search pose parameters by global search methods. We try to use stable personal facial features as representation unit.

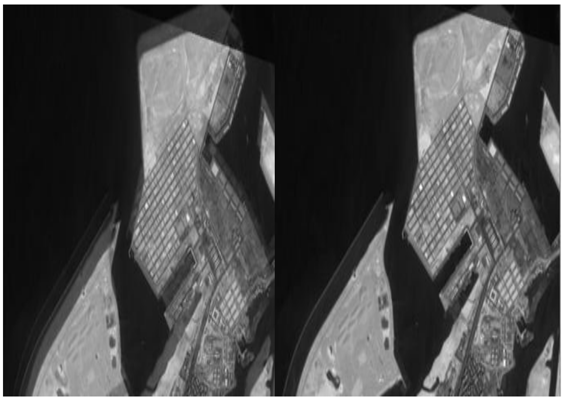

Figure2:enhanced image after proposed method

CONCLUSION

We exploit how to use as "guiding" tools to facilitate the initialization process. We believe that data could be used for human computer interaction, just like a data in the future. Since it is personal tool and is not as intrusive as adding markers on the signal, it could be a potentially good resource for further vision-based usage. We made the assumption that the user has a pair of data, maybe for improving sight, or SNR improvement glasses for gaming

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