



AN EFFECTIVE FACE DESCRIPTOR PROPOSAL FOR RECOGNITION OF FACIAL FEATURES

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ABSTRACT:

An excellent descriptor must contain a high difference between classes, but little or else no difference within classes. These descriptors are utilized in quite a lot of areas, for instance, facial expression as well as face detection. Although several methods contain discrimination power in illumination variation, they contain low detection abilities for expression conditions. Several methods explored various features, to overcome illumination difficulty while maintaining of performance in various conditions. We introduce local directional number pattern meant for strong recognition of face that encodes structural data as well as intensity variation of face texture. The proposed system will encode directional information of textures of face in a compact means, making more discriminative code when compared to present techniques. Face was divided as numerous regions, and extracts distribution of Local directional number features from them and later concatenate these features to feature vector, and we make use of it as a face descriptor. To construct local directional number code, we require a compass mask to calculate edge responses. The proposed patterns of local directional number are six bit binary code that is allotted to every pixel of input image that correspond to construction of texture as well as its intensity transitions.

Keywords: Descriptor, Local directional number, Facial expression, Face texture, Structural data, Compass mask, Edge responses, Binary code.

1. INTRODUCTION:

In analysing of Face, an important issue is descriptor of appearance of face. The descriptor efficiency will depend on depiction and easiness of removing it from face and outstanding descriptor have to contain a high difference between classes, but little or else no difference within classes [1]. There are two general approaches for extraction of facial features such as geometric-feature-basis as well as appearance-basis approaches. The former will encode shape as well as locations of various facial components that are pooled into feature vector that correspond to face. Geometric-feature-basis method will need precise as well as consistent detection of facial feature and tracking, that is tricky to put up in lots of situations. The method of appearance-basis makes use of image filters, to produce holistic features to generate local features and to take out appearance transforms in face image. Performance of appearance-basis method is outstanding in controlled environment however their performance will degrade in environmental difference. Local-feature will work out descriptor from face, and following that collects data as one descriptor. In our work we introduce a face descriptor, local

directional number pattern meant for strong recognition of face that encodes structural data as well as intensity variation of face texture [2][3]. Local directional number will encode directional information of textures of face in a compact means, making more discriminative code when compared to present techniques. Proposed method permits to distinguish intensity changes in texture moreover our descriptor will make use of entire neighbourhood data, rather than usage of sparse points for its computation hence our approach will suggest additional information into code, however it is more compact. We compute structure of micro-pattern with support of compass mask that take out directional information, and set such data by means of important direction indices as well as sign that permits us to differentiate between comparable structural patterns that contain various intensity transitions. Face was divided as numerous regions, and extracts distribution of Local directional number features from them and later concatenate these features to feature vector, and we make use of it as a face descriptor.

2. METHODOLOGY:

Recent methods have quite a lot of shortcomings. Local Binary Pattern will encode intensity of neighbourhood by means of centre pixel as threshold for sparse sample of neighbouring pixels. Little number of pixels that are used in this system will initiate several problems. It limits accuracy of technique. The method will discard maximum information in neighbourhood. To keep away from these problems additional information from neighbourhood are used, since other methods perform. We introduce a face descriptor, local directional number pattern meant for strong recognition of face that encodes structural data as well as intensity variation of face texture. Local directional number will encode directional information of textures of face in a compact means, making more discriminative code when compared to present techniques. We examine novel coding system that implicitly make use of sign of directional numbers to augment encoded structural data by means of two different masks such as derivative-Gaussian as well as Kirsch compass mask to take out directional information, as well as their performance on various applications. Local directional number uses sign

information of directional numbers that permits to differentiate related texture's structures by various intensity transitions [4]. Face was divided as numerous regions, and extracts distribution of Local directional number features from them and later concatenate these features to feature vector, and we make use of it as a face descriptor. Local directional number will encode construction of local neighbourhood by means of examining of directional information. As a result, we work out responses in the neighbourhood, in different directions by means of compass mask. From all of directions, we prefer top positive as well as negative directions to make an important descriptor for various textures by related structural patterns. Our approach permits to differentiate intensity changes in texture moreover our descriptor will make use of entire neighbourhood data, rather than usage of sparse points for its computation hence our approach will suggest additional information into code, however it is more compact. In our proposed method, coding scheme is on basis of directional numbers, rather than bit strings that encodes neighbourhood data in a well-organized means. The implicit usage of sign information, with reference to earlier

directional as well as derivative techniques we set added information in less space, and, simultaneously, distinguish more textures. Usage of gradient information makes the technique robust against changes of illumination and noise. To construct the Local directional number code, we require a compass mask to calculate edge responses.

3. AN OVERVIEW OF PROPOSED SYSTEM:

Numerous methods in support of holistic class are built on Principal Component Analysis and while these techniques were studied broadly, local descriptors have got importance due to strength to clarification and cause variations. We introduce a face descriptor, local directional number pattern meant for strong recognition of face that encodes structural data as well as intensity variation of face texture. Local directional number will encode directional information of textures of face in a compact means, making more discriminative code when compared to present techniques [5]. It uses sign information of directional numbers that permits to differentiate related texture's structures by various intensity transitions. It encodes construction of local neighbourhood by means of examining of directional

information. As a result, we work out responses in the neighbourhood, in different directions by means of compass mask. The projected patterns of local directional number are six bit binary code that is allotted to every pixel of input image that correspond to construction of texture as well as its intensity transitions. We make our pattern by means of computing edge response of neighbourhood by means of compass mask, and by considering of directional numbers, specifically most positive as well as negative directions regarding edge responses. Coding scheme was shown in fig1. The positive as well as negative responses will offer valuable data of neighbourhood structures, since they make known gradient direction of bright as well as dark areas in neighbourhood. Distinction among dark as well as bright responses, will permit Local directional number to distinguish among blocks by positive as well as negative direction that are swapped by means of generation of several codes for every instance, whereas other methods might fault swapped regions as one. Hence it is significant to distinguish among them; Local directional number will achieve this task since it assigns a particular code towards each of them. We inspect

novel coding system that implicitly make use of sign of directional numbers to augment encoded structural data by means of two different masks such as derivative-Gaussian as well as Kirsch compass mask to take out directional information, as well as their performance on various applications. Coding scheme in our system is on basis of directional numbers, rather than bit strings that encodes neighbourhood data in a well-organized means. The implicit usage of sign information, with reference to earlier directional as well as derivative techniques we set added information in less space, and, simultaneously, distinguish more textures. Usage of gradient information makes the technique robust against changes of illumination and noise. To build Local directional number code, we require a compass mask to calculate edge responses. Our approach permits to differentiate intensity changes in texture moreover our descriptor will make use of entire neighbourhood data, rather than usage of sparse points for its computation hence our approach will suggest additional information into code, however it is more compact [6]. Both masks will function in gradient space that makes known face structure. Our technique filters as well as provides more

significance to local information earlier than coding it, whereas other methods influence grouped data.

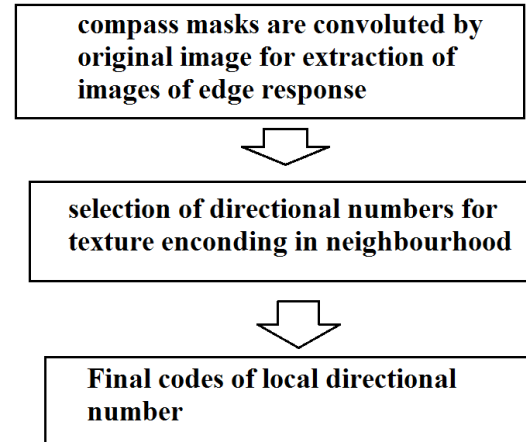


Fig1: An overview of computation of Local directional number code.

4. CONCLUSION:

In literature, there are numerous methods for holistic class that are built on Principal Component Analysis. Local descriptors have got significance due to strength to clarification and cause variations. In our work we set up local directional number pattern meant for strong recognition of face that encodes structural data as well as intensity variation of face texture. The proposed local directional number will encode directional information of textures of face in a compact means, making more discriminative code when compared to present techniques. Face was separated as numerous regions, and extracts distribution

of Local directional number features from them and later concatenate these features to feature vector, and we make use of it as a face descriptor. Coding system in our structure is on basis of directional numbers, rather than bit strings that encodes neighbourhood data in a well-organized means. To make Local directional number code, we require a compass mask to calculate edge responses. We scrutinize novel coding system that implicitly make use of sign of directional numbers to augment encoded structural data by means of two different masks such as derivative-Gaussian as well as Kirsch compass mask to take out directional information, as well as their performance on various applications. Our structure will permit to differentiate intensity changes in texture moreover our descriptor will make use of entire neighbourhood data, rather than usage of sparse points for its computation.

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