Facial Expression Recognition Using Facial Movement Features

Abstract:

Facial expression is an important channel for human communication and can be applied in many real applications. One critical step for facial expression recognition (FER) is to accurately extract emotional features. Current approaches on FER in static images have not fully considered and utilized the features of facial element and muscle movements, which represent static and dynamic, as well as geometric and appearance characteristics of facial expressions. This paper proposes an approach to solve this limitation using 'salient' distance features, which are obtained by extracting patch-based 3D Gabor features, selecting the 'salient' patches, and performing patch matching operations. The experimental results demonstrate high correct recognition rate (CRR), significant performance improvements due to the consideration of facial element and muscle movements, promising results under face registration errors, and fast processing time. The comparison with the state-of-the-art performance confirms that the proposed approach achieves the highest CRR on the JAFFE database and is among the top performers on the Cohn-Kanade (CK) database.

EXISTING SYSTEM

- The vast majority of the past work on FER does not take the dynamics of facial expressions into account.

- Some efforts have been made on capturing and utilizing facial movement features, and almost all of them are video-based.

- These efforts try to adopt either geometric features of the tracked facial points (e.g. shape vectors, facial animation parameters, distance and angular, and

trajectories, or appearance difference between holistic facial regions in consequent frames (e.g. optical flow, and differential-AAM, or texture and motion changes in local facial regions (e.g. surface deformation, motion units, spatiotemporal descriptors, animation units, and pixel difference).

- Although achieved promising results, these approaches often require accurate location and tracking of facial points, which remains problematic.

System Requirements:

Hardware Requirements:

Processor	:	Intel Duel Core.
Hard Disk	:	60 GB.
Floppy Drive	:	1.44 Mb.
Monitor	:	LCD Colour.
Mouse	:	Optical Mouse.
RAM	:	512 Mb.

Software Requirements:

Operating system	:	Windows XP.
Coding Language	:	ASP.Net with C#

REFERENCE:

Ligang Zhang and Dian Tjondronegoro, "Facial Expression Recognition Using Facial Movement Features", **IEEE Transactions on Affective Computing 2011.**