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Face Authentication, Adaptive IR Illumination

Adaptive IR Illumination Technology for Face Authentication

Variations in background illumination have always been one of the main challenges for a practical face authentication system. It is well known that variations of the same face due to illumination are almost always greater than the variations of different face identities. Many face authentication algorithms such as illumination compensation, image preprocessing, illumination invariant feature extraction and modeling of the face & illumination have been created to compensate for this problem; however, to this day, these techniques cannot completely compensate for the large variation in the appearance of the same face due to changes in illumination.

Active illumination based face authentication techniques are considered to be one of the most promising and practical methods used to solve illumination issues in indoor applications. It uses an active sensing technology to create desirable ambient illumination unaffected by uncontrollable surrounding illumination. However this technology has its own limitations based primarily on the variable distance between the user and the active illuminator. Over-saturation, partial illumination and the lack of illumination are three inherent issues, which can result from the variation of this distance and can significantly impact the characteristics of a face and in turn ultimately degrade the performance of a face authentication system.

Suprema's ‘Adaptive IR Illumination Technology’ solves this issue by controlling the intensity of the illumination based on the analysis of the image as well as various features of the face. The illumination is adaptively adjusted to create the ideal ambient environment for the capture of clear face images.

As a result, Suprema’s ‘Adaptive IR Illumination Technology’ ensures consistent face images and provides superior face authentication performance when compared with other conventional systems in the market today.

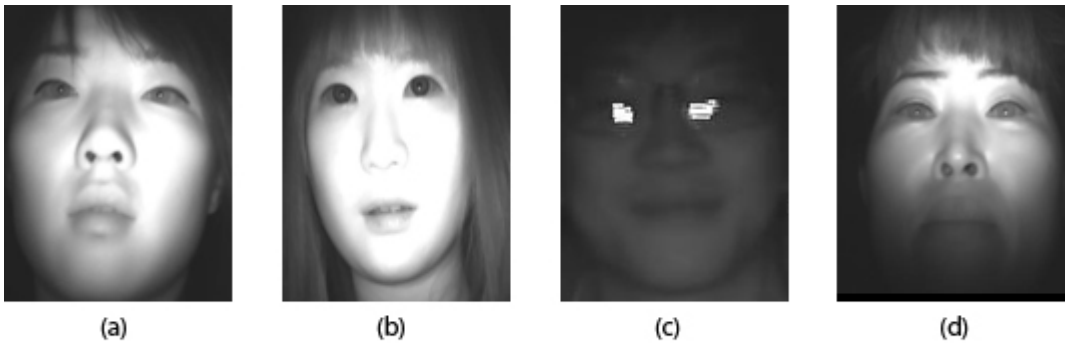

Figure 1. Examples of distorted face images

(a)(b) Saturation (c) Lack of illumination (d) Partial illumination