Multimodal 2D-3D face recognition

ABSTRACT

Up to date, many advances have been made to 2D face recognition (2D FR) due to its broad range of applications in security and commercial areas as well as in smart devices. However, 2D FR is still quite vulnerable under unconstrained conditions of the image acquisition process. To overcome 2D FR limitations, researchers shift to 3D face recognition technology but this technology is computationally expensive and inapplicable to real-world face recognition systems. Multimodal 2D-3D face recognition can combine the strength of both 2D and 3D modalities. In this paper a multimodal 2D-3D face recognition approach has been proposed based on geometric and textural characteristics of 2D and 3D modalities. The conducted experiments show that the proposed approach achieved promising results with illumination and head pose variations. The performance is evaluated using the landmark Bosphorus facial database.

Keyword: 2D-3D face recognition; Geometric invariants; Local binary pattern (LBP); k-Nearest neighbor (kNN)