Illumination Invariant Face Recognition Technology

BACKGROUND

One of main problems facing face recognition applications, especially on mobile devices, is working under different lighting conditions. Under a controlled indoor environment, face recognition can operate fairly reliably and can often reach near 100% recognition rate for a small population of subjects. However, it becomes unusable when the camera is allowed to move or placed in a different location (subject is under different illumination condition).

There have been several attempts to tackle the problem, from optic-physics models of illumination cones, morphable models, to local binary patterns. They are either complicated models difficult to implement in practice or require 3D scans of subjects.

THE TECHNOLOGY

The invention is based on 3D models but does not require 3D scanning of subjects. Concept-wise, it is much simpler than the morphable model approach. It requires a single 2D image of a subject to register (frontal pose) and can tolerate lighting direction and environment changes to the subject and recognises it (frontal pose). The technique could work for other variations, such as pose and expression with further development.

KEY BENEFITS

- More reliable facial image based biometric systems.
- Reconstruction of differently lit subjects which were not available before.
- Lightweight systems easily deployable on mobile phones.

APPLICATIONS

- Mobile devices locking/unlocking Apps.
- Mobile device based authentication systems.
- Computer graphics or animation.

INTELLECTUAL PROPERTY

GB patent application filed in April 2017.

OPPORTUNITY

Collaboration for co-development, Non-exclusive licensing

CONTACT

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