

Fusion of Phase Congruency and Harris Algorithm for Extraction of Iris Corner Points

Gugulethu Mabuza-Hocquet

CSIR: *Modelling and Digital Science*

UJ: *Engineering and the Built Environment*

Pretoria, South Africa

GMabuza@csir.co.za

Fulufhelo Nelwamondo

CSIR: *Modelling and Digital Science*

UJ: *Engineering and the Built Environment*

Pretoria, South Africa

FNelwamondo@csir.co.za

Abstract

Iris recognition uses automated techniques to extract iris features which are stored in a database as a feature template to be later used for individual identification and authentication. Strict image quality control is a basic requirement for most iris identification systems. Low cost devices used under uncontrolled environments acquire poor iris images with inconsistent illumination and specular reflections. These factors inflict challenges towards the accurate identification and extraction of reliable iris features. This work proposes a fusion of Phase congruency and Harris algorithm to detect corner features found within the arrangement of iris patterns. This fusion produces a feature vector with the exact location of corner features that are not only congruent in phase but are also invariant to illumination and rotation. Results of the proposed approach are tested on two non-ideal databases and obtain an accurate match rate of 99.9% while producing a feature template of 512 bits that requires low storage space.