Abstract

In this paper a new method to detect faces in colour images, is proposed which has wide range of application in Human-Computer interaction, face processing and illness diagnosis (specially mental disease). Skin colour, lip position and face shape information are the key parameters for developing a fuzzy rule based classifier to extract face candidate from an image. In first step, skin regions are identified in HSI colour space, using fuzzy system, applying
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distance of each pixel colour to skin colour cluster as input and produce a skin-likelihood image in output. Next step is searching lip area in the region owning the most likelihood of belonging to skin. This stage is implemented in normalized RGB colour space by fuzzy system its input is r-g value. To extract face regions, fuzzy rule based system is used, applying face and lip position, lip area data and face shape to decide which skin region is human face. With this algorithm, 98.75%, 86.6% detection rates are achieved, respectively for frontal and near frontal. Revising system for detecting profile and rotating faces associated with exactly determine lip area, is the next goal.

Reference

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Index Terms

Computer Science  Pattern Recognition

Key words

face detection  lip detection  colour space
fuzzy rule based system
mental illness diagnosis