Abstract

Various assessment characteristics have been used to evaluate the physiological condition of the skin, including skin moisture, elasticity, oil, and color. This often requires specific pieces of equipment such as a microscope. Although everyday evaluations may be needed to maintain skin condition, a particular piece of equipment may not be suitable for daily use. In this paper, it was proposed that a method to estimate skin moisture and elasticity from a facial image shot by a typical camera. The facial image’s RGB, HSV, and YCrCb components were extracted as the explanatory variables for kernel ridge regression (KRR). In general processing, one color space is often adopted for a single purpose. In this research, some of the color components of various color spaces were selectively combined as explanatory variables for KRR. To select suitable explanatory variables, the sequential feature selection (SFS) method was applied. As a result, the correlation coefficient between the estimated and measured skin moisture values was 0.35. These results showed that skin moisture estimation using the facial image was insufficient. In contrast, the correlation coefficient between the estimated and measured skin elasticity values was 0.72, indicating that the skin elasticity estimation was successful.

References
Estimation of Skin Moisture and Elasticity from Facial Image by using Kernel Ridge Regression


Index Terms

Computer Science
Pattern Recognition
Keywords
Skin moisture and elasticity  Facial image  Kernel ridge regression