

# 多層パーセプトロンを用いた肌色ベースの顔検出

## Skin Color Based Face Detection Using Multi-Layer Perceptron

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### Abstract

This paper addresses the very complex, challenging problem of human face detection in color images with complex background and a variety of lighting conditions. We propose a new, skin-color-based face detection method using a multi-layer perceptron (MLP) as applied to a two-class classification problem between “skin-color” and “non-skin color.” The proposed method has two key ideas. One is effective skin color detection using MLP trained in a combined HLS and YCbCr color space. The other is a hierarchical, sequential process of face detection: segmentation and grouping of skin regions, face candidate selection, and verification of face candidates. This process utilizes not only image processing techniques such as connected component analysis, morphological operation, and contour tracing but also the top-down knowledge about facial characteristics such as the aspect ratio of a face and the existence of eyes as holes in a skin region. Experimental results using our personal photo collection demonstrate that the proposed method achieves a high and encouraging face detection rate of 80.79% while suppressing a false positive detection rate.

### 1 はじめに

本論文では、文献 [1] に基づき、

### 2 肌のカラー情報

#### 2.1 HLS カラー空間

### 3 実験結果

### 参考文献

- [1] S. A. Cook. The complexity of theorem-proving procedures. In *Proceedings of the third annual ACM symposium on Theory of computing*, pages 151–158, 1971.

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