

國立交通大學

顯示科技研究所
碩士論文

數位相機之自動白平衡演算法

**Automatic White Balance Algorithm of
Digital Still Cameras**



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Abstract

We analyze illuminant classification algorithm designed to group images by illuminant color temperature. To classify the illumination color temperature, a version of the correlation method suggested by Finlayson and colleagues is used. By using image calibrating with known illuminants, it was found that the original correlation method can be further improved by using a simple Gaussian model to simplify parameters in hardware memory. The color correction method is based on summarizing the ratio of R, G, and B sensor responses under different illuminants. R and B gains are defined as a function of color temperature. Therefore, the color correction can be performed in a simple way by the lookup table. In experiment, we adopt black box method to simplify color appearance theories.

摘要

此篇論文根據前人建議的光源評估方法，採用高斯機率模型模擬色彩機率分佈，大大的減少使用在數位相機上的記憶體空間。在白平衡校正上，利用 R/G、B/G 的比值，與色溫建立關係式，藉此色彩校正可簡單的應用在數位相機上。實驗上，在模擬部分，我們利用已經定義好的色塊卡組合成場景，並用相機拍成影像去統計色彩分布；在實作部份，我們收集各種場景的照片去統計各色溫的色彩分佈機率。此種方式，直接拿結果去分析色彩值，不用考慮其形成方式，簡化了繁複的理論。

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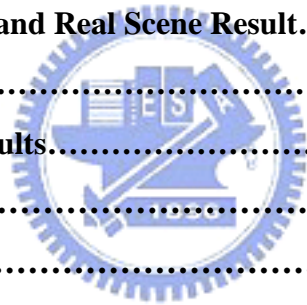
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