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本期目录 | 下期目录 | 过刊浏览 | 高级检索

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器件物理及器件制备技术

基于视觉灰平衡的LCD显示器色彩校正

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**摘要：**中性灰平衡是评价成像设备成像质量的重要指标。文章提出视觉灰平衡的概念和模型，使用查找表的方法获取显示器的各阶调视觉灰平衡数据，并将该数据拟合成视觉灰平衡阶调复制曲线加载到显示图像中，主观实验结果表明，校正图像Z分数在95%的置信区间大于原始图像，图像质量得到明显改善。设计了包含视觉中性灰色的显示器特性化色表，重新制作显示器特性化文件ICC，实验结果表明使用新色表生成ICC的再现色域完全包含默认色表生成ICC的再现色域。显示器加载新ICC后，色彩再现能力将大幅提高。

**关键词：**视觉灰平衡 LCD显示器 色彩校正 显示质量

Color Correction of LCD Displays Based on Visual Gray Balance

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**Abstract:** Neutral gray balance is one of the most important metrics to evaluate the quality of image on image devices. The concept and model of visual gray balance are proposed in this paper. This paper uses the look-up-table to get the visual gray balance data, which are used to fit visual gray balance curves, and load the visual gray balance curves into the images displayed on the LCD displays. The results of subjective experiments show Z scores is greater than those of original images with 95% confidence interval, which are calculated by evaluating the corrected images. Then, considering the visual gray color, the color chart is redesigned and the ICC of LCD displays is remade. The result shows that compared with the color gamut which are produced by the default color chart, the new one appears to be large. LCD displays will reproduce more color by loading the new ICC.

**Keywords:** visual gray balance LCD displays color correction display quality

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