

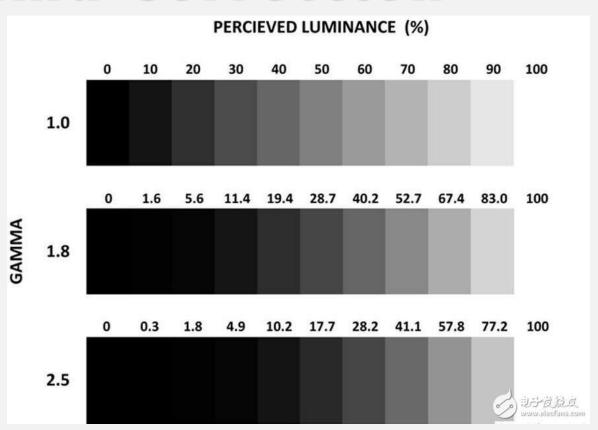
ISP-Gamma Correction







Gamma Correction



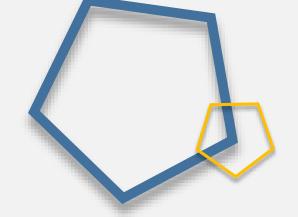
目录 CONTENTS

01. 产生原因

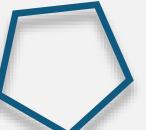
02. 校正方法

03. 方法实现







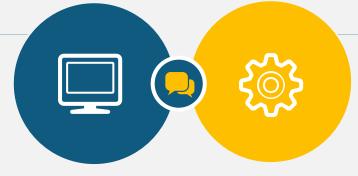




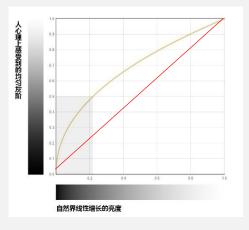


CRT显示器属性导致

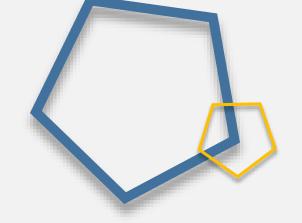




人眼视觉属性

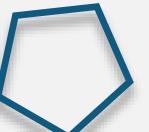








02 校正方法





▶ 校正法──LUT法

Gamma 校正的快速算法及其 C 语言实现

曾嘉亮

(汕头职业技术学院机电工程系, 汕头 515078)

摘要: Gamma 校正是数字图像显示前必不可少的操作。若直接套用公式来实现的话,执行效 率非常低: 许多文献都提到可以使用查找表来加速这一操作, 然则语焉不详, 并未具体介绍实 现方法。在对gamma 校正原理进行深入研究的基础上,构造出 gamma 校正查找表,并提出了运 用该表对数字图像进行快速 gamma 校正的方法。该算法特别适用于在嵌入式系统中处理视频流。 关键词: 显示系统: gamma 校正: 查找表: 快速算法

A fast algorithm of gamma correction and its implementation with C

ZENG Jia-liang

(Department of Mechanical and Electrical Engineering, College of Shantou Polytechnic, Shantou 515078, China)

Abstract: Gamma correction is a necessary operation for a digital image before it is sent to display. But, if this operation is performed by applying the correction formula mechanically, a poor performance will be got. Many articles mentioned that using a look- up table can accelerate this operation, unfortunately, that how to do this is not spoken in detail. Basing on the understanding of the theory of gamma correction, it presents a technique for building a gamma correction look- up table, finally gives a fast algorithm for performing gamma correction by using the look- up table. For the embedded systems which are forced into processing video stream, this algorithm fits the bill.

Key words: display system; gamma correction; look – up table; fast algorithm

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於 校正法——线性插值

//gamma_org

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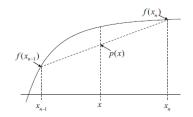


Figure 2. The method of Linear Interpolation[3]

$$p(x) = \frac{f(x_n) - f(x_{n-1})}{x_n - x_{n-1}} (x_n - x)$$
 (3)

Piecewise linear interpolation expands this progress to the whole curve as shown in Fig. 3.

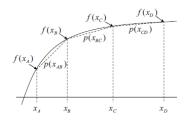
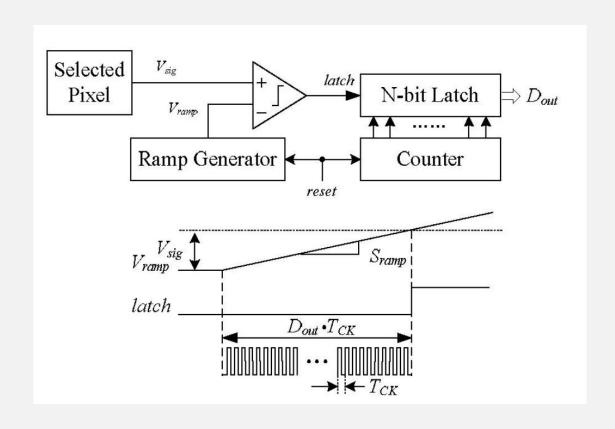


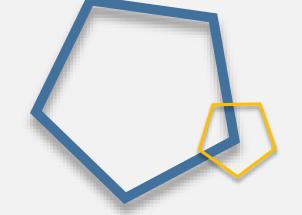
Figure 3. The method of Piecewise Linear Interpolation[3]



校正法—模拟gamma

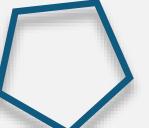








Gamma的实现







食鱼者



202106



wtzhu13



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