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基于汉明码与从属像素补偿的半色调图像信息隐藏

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Data Hiding in Halftone Images Based on Hamming Code and Slave Pixels

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- 摘要
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摘要 提出了一种以半色调图像为载体的基于汉明码与从属像素补偿的信息隐藏方法. 将载体半色调图像像素分为主像素和从属像素, 主像素用来承载秘密信息, 从属像素作为主像素的补偿位, 通过从属像素的修改来避免隐写图像视觉效果下降. 与此同时, 主、从像素一一对应的配对方式简化了从属像素的选择, 提高了图像像素的利用率.在信息嵌入的过程中引入汉明码, 既提高了嵌入率, 又降低了原始像素的修改比例. 通过实验对比分析可以看出, 本方法在嵌入率和隐写图像的视觉效果上均超过了已有的半色调图像隐写方法.

关键词： 半色调图像 汉明码 从属像素 视觉质量

Abstract： This paper proposes a new data hiding scheme for halftone images. The original image is divided into two parts: host pixels for carrying secret data and slave pixels for avoiding degradation of visual quality respectively. The secret data is embedded in the host pixels using the Hamming code with high embedding efficiency. Each host pixel is toggled with one slave pixel, and an inverse flip on the slave pixel is used to keep the visual quality. Experimental results show that the proposed scheme outperforms some previous schemes.

Keywords： halftone image, Hamming code, slave pixel, visual quality

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