

基于卷积神经网络的对比度失真图像质量评价

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摘要: 研究对比度失真的图像质量评价方法.借助卷积神经网络来设计图像质量的评价算法.在提出的算法中,设计了一个多层的卷积神经网络,包括三层卷积层、三层池化层和三层全连接层,该网络可以自动地学习与图像质量相关的特征.利用现有的数据库对设计的网络进行训练,使其可以对图像的质量做出预测.通过实验测试,证明了提出的方法可以取得较高的预测性能,以及超过了主流的图像质量评价模型.

关键词: 视觉质量评价; 对比度失真; 卷积神经网络; 卷积层

Quality Assessment for Contrast-Distorted Images Based on Convolutional Neural Network

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Abstract: In this paper, we devise a dedicated quality evaluation scheme to automatically predict the quality of contrast-changed images, which is based on the newly presented convolutional neural network (CNN) as CNN has been proved quite effective in dealing with computer vision tasks. The designed CNN includes three convolution layers and two fully connected layers. By training the CNN on existing image quality databases, we can evaluate the quality of the contrast-distorted images. Experimental results demonstrate the proposed method delivers high prediction performance and outperform mainstream image quality methods.

Key words: visual quality assessment; contrast-changed images; convolutional neural network; convolution layers

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