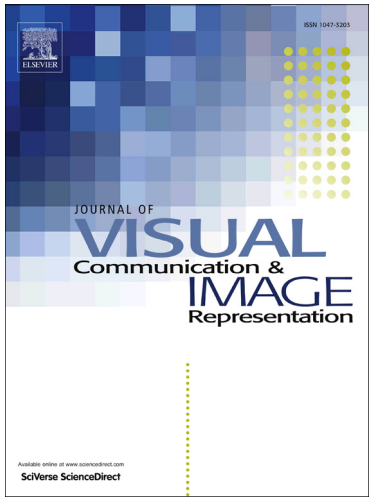

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Stereoscopic Image Quality Assessment by Learning Non-negative Matrix Factorization-based Color Visual Characteristics and Considering Binocular Interactions

Gangyi Jiang[a,*], Haiyong Xu[a], Mei Yu[a], Ting Luo[a], Yun Zhang[b]

[a] Faculty of Information Science and Engineering, Ningbo University, Ningbo, 315211, China

[b] Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, 518055, China

Abstract

In this paper, we propose a novel stereoscopic image quality assessment (SIQA) method by learning non-negative matrix factorization (NMF)-based color visual characteristics for monocular perception and considering binocular interactions. In training phase, a feature basis matrix is learned based on NMF by considering color information and a feature detector is designed by performing Schmidt orthogonalization on the feature basis matrix. In construction of SIQA phase, for monocular perception, visual saliency regions are selected and parts-based feature similarity indexes of left and right views based on the feature vectors extracted by the feature detector are calculated. For binocular interactions, we calculate cyclopean feature similarity index by considering binocular fusion and rivalry. Finally, support vector regression is used to simulate nonlinear relationship between monocular perception and binocular

* Corresponding author. Tel.: +xx xxx xx xx; fax: +xx xxx xx xx. E-mail address: xxxxx@xxx.xx