互补色小波域自然场景统计显著图模型

陈　扬，张建秋

（复旦大学 信息科学与工程学院，上海 200433）

摘　要：传统显著图（Saliency map）通常基于灰度图像+彩色拮抗辅助通道的模型。其未能整体充分考虑颜色通道之间、颜色与方向等显著性要素之间关系.为了克服这样的缺点，本文将人眼视觉有重要作用的互补色理论引入小波设计，提出一种基于自然场景的高斯尺度混合模型（Gaussian scale mixture, GSM）及其分区归一化变换（Divisive normalization transformation, DNT）的彩色整体显著图模型.实验结果表明，该模型较其他同类模型有显著优越性，特别在处理色彩丰富的场景时能大幅提高与人眼视觉机制一致性.

关键词：显著图；自然场景统计分布；小波变换；互补色

A natural scene statistical saliency map model in complementary color wavelet domain

CHEN Yang，ZHANG Jian-qiu

(School of Information Science and Technology, Fudan University, Shanghai 200433, China)

Abstract：Traditional saliency map models are usually based on grayscale images and auxiliary color antagonism channels, not carefully considering the relations of the key saliency elements such as relations among color channels and orientations. To overcome this disadvantage, in this paper, we introduce the complementary color theory into the wavelet designs and propose a holistic color saliency map model based on the Gaussian scale mixture (GSM) of natural scene statistics and its Divisive normalization transformation (DNT) in the wavelet domain. The experimental results show that our model achieves better consistency with the visual attention mechanism of the human eyes, especially in processing colorful scenes.

Key words：saliency map; natural scene statistics; wavelet transform; complementary colors

作者简介：

陈　扬　男，（1982-），博士研究生.研究方向为多尺度滤波与图像处理.E-mail:lB110720040@fudan.edu.cn.

张建秋　男，（1962-），教授、博士生导师.研究方向为包括信息处理应用、图像处理等.