SALIENCY-BASED COLOR ACCESSIBILITY

ABSTRACT

Perception of color varies markedly between individuals because of differential expression of photo pigments in retinal cones. However, it has been difficult to quantify the individual cognitive variation in colored scene and to predict its complex impacts on the behaviors. We developed a method for quantifying and visualizing information loss and gain resulting from individual differences in spectral sensitivity based on visual salience. We first modeled the visual salience for color-deficient observers, and found that the predicted losses and gains in local image salience derived from normal and color-blind models were correlated with the subjective judgment of image saliency in psychophysical experiments, i.e., saliency loss predicted reduced image preference in color-deficient observers. Moreover, saliency-guided image manipulations sufficiently compensated for individual differences in saliency. This visual saliency approach allows for quantification of information extracted from complex visual scenes and can be used as an image compensation to enhance visual accessibility by color-deficient individuals.
ARCHITECTURE

(a) Two observers with different color visions have distinct perceptual experiences for the physically identical stimulus.

(b) Previous approach based on color conversion.
(c) The proposed approach based on visual salience.

**EXISTING SYSTEM**

In existing system perception of color varies markedly between individuals because of differential expression of photo pigments in retinal cones.

**DRAWBACK OF EXISTING SYSTEM**

- It has been difficult to quantify the individual cognitive variation in colored scene and to predict its complex impacts on the behaviors.
- It lacking one class of photo pigments are deficient in their ability to discriminate colors.
PROPOSED SYSTEM

We developed a method for quantifying and visualizing information loss and gain resulting from individual differences in spectral sensitivity based on visual salience.

ADVANTAGE OF PROPOSED SYSTEM

- Visual salience found that the predicted losses
- Saliency loss predicted
- Reduced image preference in color-deficient observers.

SYSTEM SPECIFICATION

Hardware Requirements

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Pentium IV 2.4 GHz</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>40 GB</td>
</tr>
<tr>
<td>Floppy Drive</td>
<td>1.44 Mb</td>
</tr>
<tr>
<td>Monitor</td>
<td>15 VGA Colour</td>
</tr>
<tr>
<td>Mouse</td>
<td>Logitech</td>
</tr>
<tr>
<td>Ram</td>
<td>512 Mb</td>
</tr>
</tbody>
</table>
Software Requirements

Operating system : Windows XP
Technology Used : Microsoft .NET
Backend Used : SQL Server