Supplemental Document for ”Change Blindness Images”

This supplemental document provides additional user study results for the paper submission entitled "Change Blindness Images”.

I. User Study 1

In this section, we provide all the 100 real-world images and the 100 generated changed counterparts that are used in our user study. For each image pair, we provide the predicted blindness by our metric, the predicted recognition time (predicted blindness * 60), the average measured recognition time, intra image (inter subject) standard deviation of the measured recognition times, and the relative error (between the predicted and average measured recognition times). Change locations could be found in Figures 7 & 14.

A. Training Set

<table>
<thead>
<tr>
<th>Example</th>
<th>original image</th>
<th>changed counterpart</th>
<th>original image</th>
<th>changed counterpart</th>
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<th>measured recognition time (s)</th>
<th>standard deviation (s)</th>
<th>relative error(s)</th>
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Fig. 1. Examples 1 - 4.
Fig. 2. Examples 5 - 14.
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Fig. 3. Examples 15 - 24.
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Fig. 4. Examples 25 - 34.
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Fig. 5. Examples 35 - 42.
Fig. 6. Examples 43 - 50.
Fig. 7. Change locations in the training images of user study 1.
B. Testing Set

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Fig. 8. Examples 1 - 10.
Fig. 9. Examples 11 - 20.
Example 21 - 30.

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Fig. 10. Examples 21 - 30.
Fig. 11. Examples 31 - 35.
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Fig. 12. Examples 36 - 43.
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Fig. 13. Examples 44 - 50.
Fig. 14. Change locations in the testing images of user study 1.
II. User Study 2

As said in the paper, we have modified 6 scenes, with 3 different difficulty levels, by setting desired blindness value $B^*$ as 0.2, 0.5, and 0.8, respectively. We provide all the 6 scenes, and the 18 generated changed counterparts. Change locations could be found in Figure 17.

Example 1

Example 2

Example 3

Example 4

(a) original image (b) $B^* = 0.2$ (c) $B^* = 0.5$ (d) $B^* = 0.8$

Fig. 15. Examples 1-4.
Fig. 16. Examples 5-6.

(a) original image  (b) $B^* = 0.2$  (c) $B^* = 0.5$  (d) $B^* = 0.8$

TABLE I

\begin{tabular}{cccccccccc}
\hline
Example & 1 & 2 & 3 & 4 & 5 & 6 & average \\
\hline
recognition time (s) \\
$B^* = 0.2$ & 8.7 & 19.6 & 21.9 & 16.8 & 13.1 & 10.0 & 15.0 \\
$B^* = 0.5$ & 32.3 & 40.6 & 30.8 & 33.5 & 17.4 & 43.9 & 33.1 \\
$B^* = 0.8$ & 57.4 & 48.9 & 39.5 & 40.9 & 38.7 & 58.5 & 47.3 \\
\hline
\end{tabular}

\textbf{TABLE I}

\textbf{RECOGNITION TIMES FOR ALL EXAMPLES.}

Fig. 17. Change locations in the images of user study 2.