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Research on Detection of Web Page Visual Salience Region Based on Eye Tracker and Spectral Residual Model

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Abstract : Web page has been one of the most important way of knowing the world. Humans catch a lot of information from it everyday. Thus, understanding where human looks when they surfing the web pages is rather important. In normal scenes, the down-top features and top-down tasks significantly affect humans' eye movement. In this paper, we investigated if the conventional visual salience algorithm can properly predict humans' visual attractive region when they viewing the web pages. First, we obtained the eye movement data when the participants viewing the web pages using an eye tracker. By the analysis of eye movement data, we studied the influence of visual saliency and thinking way on eye-movement pattern. The analysis result showed that thinking way affect human' eye-movement pattern much more than visual saliency. Second, we compared the results of web page visual salience region extracted by Itti model and Spectral Residual (SR) model. The results showed that Spectral Residual (SR) model performs superior than Itti model by comparison with the heat map from eye movements. Considering the influence of mind habit on humans' visual region of interest, we introduced one of the most important cue in mind habit-fixation position to improved the SR model. The result showed that the improved SR model can better predict the human visual region of interest in web pages.

Keywords : web page salience region, eye-tracker, spectral residual, visual salience
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