Psychophysical evaluation of individual low-level feature influences on visual attention.

Título Psychophysical evaluation of individual low-level feature influences on visual attention.

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Abstract In this study we provide the analysis of eye movement behavior elicited by low-level feature distinctiveness with a dataset of synthetically-generated image patterns. Design of visual stimuli was inspired by the ones used in previous psychophysical experiments, namely in free-viewing and visual searching tasks, to provide a total of 15 types of stimuli, divided according to the task and feature to be analyzed. Our interest is to analyze the influences of low-level feature contrast between a salient region and the rest of distractors, providing fixation localization characteristics and reaction time of landing inside the salient region. Eye-tracking data was collected from 34 participants during the viewing of a 230 images dataset. Results show that saliency is predominantly and distinctively influenced by: 1. feature type, 2. feature contrast, 3. temporality of fixations, 4. task difficulty and 5. center bias. This experimentation proposes a new psychophysical basis for saliency model evaluation using synthetic images.

Palabras chave visual attention, psychophysics, saliency, task, context, contrast, center bias, low-level, synthetic, dataset

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