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Multiple-Object Search in Cluttered Scenes

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Abstract

Visual clutter impairs performance for single target searches in scenes. Our study investigated the effect of clutter on visual search performance in scenes where multiple targets were present. Observers completed a search task which required detecting multiple targets when given a word representing the target. The number of targets in scenes was varied and the visual clutter was measured using a clutter algorithm. Results showed that search performance declined with increasing levels of clutter. In particular, participants searched longer and made more errors in highly cluttered scenes. Further analyses suggested that participants elicited a tendency to overestimate the number of targets in scenes where clutter was high. Overall, these findings suggest that visual clutter impairs performance for multiple target searches.