VIRTUALEYE - LIFE GUARD FOR SWIMMING POOLS TO DETECT ACTIVE DROWNING

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[1] Berbaum, K. S., Franken, E. A., Jr., Caldwell, R. T., & Schartz, K. M. (2010). Satisfaction of search in traditional radiographic imaging. In E. Samei, & E. Krupinski (Eds.), The handbook of medical image perception and techniques (pp. 107–138). Cambridge: Cambridge University Press.

Radiologists have linked a subgroup of underreading mistakes (false-negative results) to "satisfaction of search," which happens when lesions are still missed after an initial lesion is found. The experimental laboratory has not been used to study this phenomenon. The development of a method or paradigm for investigating search satisfaction was one of the main objectives of this study. Before and after adding a simulated nodular lesion to pictures, the authors examined the detection accuracy for native lesions. The natural abnormalities were physically identical with and without the nodules, and the simulated and native lesions were not spatially overlaid. We only looked at reactions that were connected to the native lesion. The methods of maximum likelihood and jackknife were used to determine the accuracy parameters of receiver operating characteristic (ROC) curves.

[2] Biggs, A. T., Cain, M. S., Clark, K., Darling, E. F., & Mitroff, S. R. (2013). Assessing visual search performance differences between Transportation Security Administration Officers and nonprofessional visual searchers. Visual Cognition, 21(3), 330-352.

The accuracy of some visual searches is crucial (e.g., in radiology and airport security screening), so it's crucial to know what variables most effectively predict performance for theoretical and practical reasons. In order to evaluate group differences in which criteria predict accuracy, the current study gave a visual search task to both professional (Transportation Security Administration Officers) and nonprofessional (members of Duke University) searchers. For nonprofessional searchers (who accounted for 59% of their accuracy variability) and the least experienced professional searchers (37% of variability), search speed*time taken to terminate search*was the main predictor. For the most skilled professional visual searchers, consistency—or how consistently (in terms of search speed) an individual spent searching from trial to trial—was the main predictor (39% of variability).

[3] Moore, K. S., & Weissman, D. H. (2014). A bottleneck model of set-specific capture. PLOS One, 9(2). DOI: 10.1371/journal.pone.0088313.

When multiple attentional sets direct visual search (e.g., "search for green letters" and "search for orange letters"), set-specific contingent attentional capture—a particularly potent form of capture—occurs. A potential target that matches one attentional set, such as a green stimulus, hinders the capacity to recognise a temporally nearby target that matches another attentional set in this sort of capture (e.g. an orange stimulus). In the current investigation, we looked into whether working memory bottlenecks or the exhaustion of finite resources spread across several attentional sets are the causes of set-specific capture. Participants in each trial looked for up to three target letters (T1-T3) that might occur in any of three target colours (orange, green, or blue) in a rapid serial visual presentation (RSVP) stream.

[4] Pylyshyn, Z. W. (1998). Visual indexes in spatial vision and imagery. In R. D. Wright (Ed.), Visual Attention (pp. 215-231). New York: Oxford University Press.

This study presents a programming theory of indexing, an early visual activity. The theory postulates that only a few simple indexes are capable of identifying, following, and granting direct access to important visual items. We go over some theoretical and empirical justifications for the suggested index as a resource-limited connection between an internal visual representation and visual objects. We contend that in order to explain wide range of visual abilities, such as the capacity to follow many moving things at once, tochoose a subset of visual objects to be processed, and broader questions like why the world appears to be flat and how mental representations acquire their apparent metrical qualities despite ongoing retinal mobility.

[5] wolfe, j. m., & friedman-hill, s. r. (1992). visual search for oriented lines: the role of angular relations between targets and distractors. spatial vision, 6(3), 199-207.

Conducted two tests using a total of 19 Ss to demonstrate that the relationships between distractor and target orientations can behave differently from what is predicted by a similarity metric based on angular difference. When given an object with a specific orientation against a background texture made up of lines with two different orientations, Ss engaged in concurrent visual search for the object. This search was accelerated by a number of stimuli. Ss benefited from the target's angles being smaller than those created by the two distractor orientations when the target had one of the distractor types. The findings show that, even for a seemingly straightforward attribute like orientation, stimuli similarity is a tricky idea.