Information Gain (IG)

Proposed by Kummerer et al., 2014

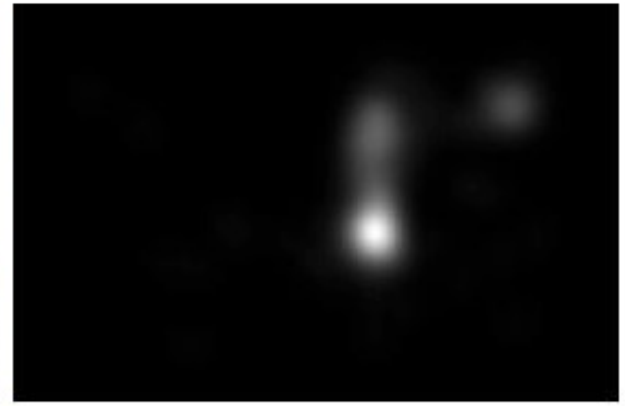
Designed to handle center bias*
and have an interpretable linear scale

* By averaging fixations over many images, a central Gaussian distribution naturally emerges. As a result, false positives sampled from other images will come predominantly from the image center.

- The metric measures the information gain of a saliency map over a baseline (which captures image-independent behavioral fixation biases).
- Baseline is created as averaging the ground truth fixation maps of all other images.
- A score above zero indicates the saliency map has a better prediction for the fixated locations than the baseline, beyond behavioral fixation biases.

- This formulation is amenable to replacing the baseline with any other model, and can be used for measuring the information gain of one model over another.

Ground Truth



Baseline Maps

Saliency Map

information gain over baseline

less more

distance to real information gain

IG visualizations