INTERNET SEARCH ON THE SUBJECT OF LIGHT SYNCHRONISATION

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Synchronisation light is currently used for transport signalisation (railways, aviation, traffic, marine) to increase conspicuity but there aren’t studies about modelization of conspicuity synchronisation.

However there is a very interesting work about neurobilogical modeling of visual attention conducted by University of Southern California (Department of Computer Science, Los Angeles).

It’s developing a trainable model of bottom-up, task-independent, saliency-based selective visual attention. It is based on the original idea the existence, in the brain, of a specific visual map encoding for local visual conspicuity. Visual attention depends on color, intensity, orientation, motion and temporal change (flicker).

With this model we could calculate time necessary to locate AtoN with luminous background and quantify conspicuity of AtoN.

Bottom-Up Visual Attention: Theory

Source :

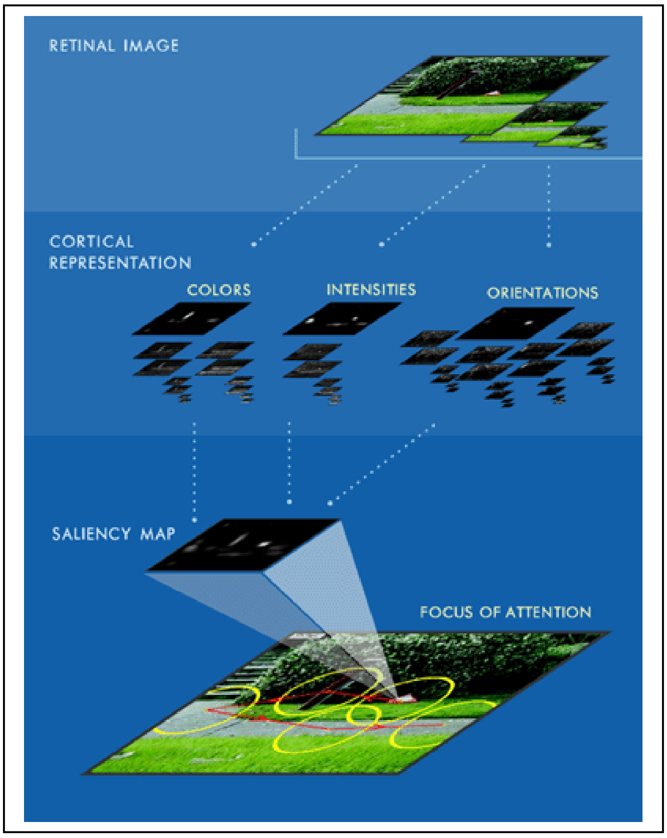
Department of Computer Science, University of Southern California, Los Angeles, California

http://ilab.usc.edu/bu/ *(theory, demo, publications)*

We here present a brief overview of our model for the bottom-up control of visual attention in primates. Given an input image, this systems attempts to predict which location in the image will automatically and inconsciously your attention towards them.

In this biologically-inspired system, an input image is decomposed into a set of multiscale neural ``feature maps'' which extract local spatial discontinuities in the modalities of color, intensity and orientation.

Each feature map is endowed with non-linear spatially competitive dynamics, so that the response of a neuron at a given location in a map is modulated by the activity in neighboring neurons. Such contextual modulation, also inspired from recent neurobiological findings, has proven remarkably efficient at extracting salient targets from cluttered backgrounds.



All feature maps are then combined into a unique scalar ``saliency map'' which encodes for the salience of a location in the scene irrespectively of the particular feature which detected this location as conspicuous.

A winner-take-all neural network then detects the point of highest salience in the map at any given time, and draws the focus of attention towards this location.

In order to allow the focus of attention to shift to the next most salient target, the currently attended target is transiently inhibited in the saliency map (a mechanism, ``inhibition-of-return'' which has been extensively studied in human psychophysics). The interplay between winner-take-all and inhibition-of-return ensures that the saliency map is scanned in order of decreasing saliency by the focus of attention, and generates the model's output in the form of spatio-temporal attentional scanpaths.