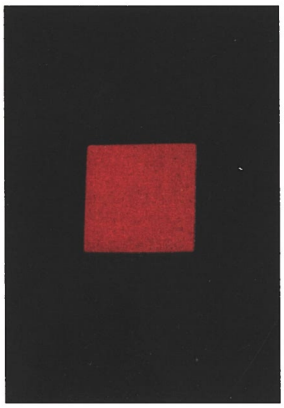
Which Colour do *You* Prefer?

This is an installation of intelligent light producing objects that are interactive and responsive to the user's preference for colours. The objects are networked together in a simple artificial neural network.



Colour Installation

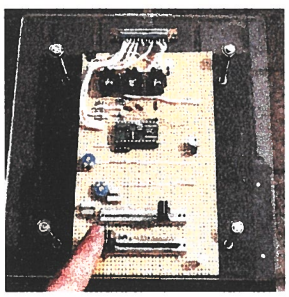
The colours in this installation are produced by illuminating a rotating filter wheel, which contains the primary colours and then mixes the coloured light in a mirror-box which emerges as a specific hue back-projected onto a screen. The filter's rotation is under micro-processor[1] control and hence the hues can be reproduced on demand. The installation displays colours of the spectrum that trace a horizontal ring of equal saturation, but different hue through the Munsell colour solid.

Colour Interaction

The user interacts with this installation through a question and answer routine aimed at encouraging an intuitive response to the screen's colour. The prototype installation reads the user's colour choice through a touch input, where the user scrolls through the colours in the manner of an 'electronic swatch' by sliding a dial left and right. The computer interprets the position of the sliding dial and drives the filter-wheel to produce that colour while it logs the time spent at each of the colour swatch positions. Initially users of the installation will randomly sample colours from this "electronic swatch", they are prompted to strike a button to change the screen's colour. The results of each button strike (the colour shown and time interval between button strikes) are stored in memory.

Embedded-Intelligence

Inferring a preferred colour is based on a psychology experiment (N.K. Humphrey *perception*, 1972) which placed a monkey in a darkened room with an illuminated screen at one end. Two colours projected alternately onto the screen when a single button was struck by the monkey, and a reward was offered as an incentive to keep striking the button. The time spent looking at each colour was compared, if the monkey spent longer looking at one colour it was presumed to be preferred. In this installation the computer infers a preferred colour by assessing from the random colours displayed which were viewed for the longest period. In the next session of random colours the computer adds a weighting to the preferred colours, i.e. colours that are looked at for longer, and will stop showing colours that the random number generator produces in those parts of the spectrum that are not preferred, i.e. looked at for less time. This installation may show that areas of the spectrum that *are* preferred by this inference method will be narrowed down to a few colours in an essentially infinite colour spectrum by compiling a "colour-preference" map



Colour Environment

The objects can also display colour combinations with a 'focus-colour' set against a 'ground-colour'. Initially the installation will present colour combinations of the successful single colour environments at random. By applying a similar processing rule as described above and introducing mutations of previous unsuccessful colours to the screen, it is predicted that this installation might enable the machine to learn patterns of colour preference from large numbers of possible colour combinations, i.e. that users will spend more time looking at the previously selected colour environments than the randomly generated environments.

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[1] BASIC STAMP single-chip computer from PARALLAX Inc. USA