ColourVision—Controlling Light Patterns through Postures

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Abstract. ColourVision is an interactive installation that empowers people to step into an intensive dialogue with colors. Physical seating postures such as active, relaxed or reflective positions are captured, translated and trigger a rapid change of the room’s color. The installation was planned and executed for the Museum of Perception in Upper Austria, where we wanted to create seamless communication between the visitor and the color that would lead to an aesthetic experience in the space and let people experience the psychological effects of different colors.

Keywords: light installation, responsive environment, body interface, interactive art.

1 Introduction

In an article that analyzed the psychological effects of environmental colors on the human body, Stone et al. [5] claimed that “red and yellow are naturally experienced as stimulating and disagreeable,” and that “these colors focus people on the outward environment,” and that “they produce forceful, expansive behavior, whereas green and blue are experienced as quieting and agreeable, focusing people inward, and produce reserved, stable behavior.” Olafur Eliasson’s Room 360° for all colors [2] is a good artistic example on how a person can be encapsulated within a light-space and perceive an intensive experience of colors (see Figure 1a). In contradiction to monochromatic light-spaces with one light source, his installation captures the visitor constantly through continuous changes. In addition to Eliasson, we wanted to create a dialogue between the body language of the visitors and color changes. Responsive environments, such as those described by Moeller [4] in his participatory light installation Electro Clips, were inspiring in the ideation phase. Bullivant [1] documented how spaces can rearrange themselves and include a wide audience, such as the light installation ICE from Iwai, where participants can paint colors on a digital surface with their hands (see Figure 1b) or Sky Ear [3], a playful public installation based on color interactions (see Figure 1c). Winkler described the challenges for artists to create such an experience in his participatory sound and light installation Light around the Edges [6].

Combining a lighting installation with an interface that interprets the body positions of a person and visualizes them in a space through color seemed a way to
enable participants to quickly communicate with a light space. The natural, seamless interaction with light was important for creating this installation as visitors should step into an intensive color experience and reflect on the effects of colors on themselves without being distracted. *ColourVision* combines color changes corresponding to the participants’ body language and lets them glide into an intensive dialogue with the environment.

2 ColourVision

![Initial animation from the ideation phase showing different seating positions and the resulting room colors: (from left) (a) activity, (b) reflectiveness and (c) relaxation](image)

2.1 Technical Setup

A camera on the ceiling in the center of the space is attached to a PC with video analysis software written in C++. Participants were tracked in a chair from above and the resulting data was sent to a DMX converter that digitally controlled the different colors in the space. The installation consists of 45 x 58 watt fluorescent RGB lamps arranged in a half circle, with 15cm of space between them. A rear projection foil serves as a diffuser with sites at a distance of 65cm to the lamps in order to present a planar lighting experience. We shaped the projection foil in a curve so that no spatial edges or corners are perceived in the view area (Figure 3).