

Perceptions: Digital Fabrication and Light

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Abstract

Light is an architectural element. The comprehension and perception of the built space is directly related to the way light interacts with it.

Light is responsible to give the user of a space the ability to distinguish physical forms, dimensions, but can also stimulate diverse visual sensations, experiences and moods. Light can improve or destroy a good design and its action plays a fundamental role in different evaluations of quality in architecture.

In this sense, the present research aims to study the effects of artificial light on the perception of architectural spaces. To achieve that, diverse precedents were analyzed. The first one is a night club called The Year, located in São Paulo, Brazil. It is an industrial space turned dance club, with its hangar reimagined as an interactive light installation. The inner dance floor is an interactive LED cage, responding to several sensors in the space. The DJ can control the light effects with his own dance motions, through a body sensor. Above the dance floor, another sensor is responding to temperature and movement of the dancing below, transforming this information into lighting effects.

Other important precedent to the objectives of this research is an artistic installation called La Lampe by Muti Randolph, which functions as both a light source and a conceptual art installation. The forms are inspired by waves, but they also create the feeling of movement. The sculpture is reflected in mirrors on the ground and from above, extending the piece. When standing in proximity of the mirrors, the viewers sees an illusion of an infinite, glowing sea before them

Light is a common element in our lives. Natural and artificial light have direct influence in our daily activities. The use of light in an artistic way can change the way we perceive the spaces around us. The effects of interaction of light are visual and mental stimuli that can be at the same time intriguing and entertaining to the users of a space. This research will explore how to digitally analyze and produce forms that uses light to affect the perception of the users of a given space. Furthermore, another experimentation of this research will be the use of the same material to achieve different results on light emission and, consequently in the comprehension of space.

The research will use techniques of digital fabrication such as digital modeling with Rhinoceros 3D and plugins as Grasshopper and Firefly to collect data and transform it into parameters to a physical product that will be a scaled model of the concepts and ideas developed in the course of the investigative process. The materials will be acrylic, regular incandescent lamps and electronic circuits and sensors to interact with users and their movements in the proposed installation.

References:

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