

# Phenomenological Reflection on Architectural VR Technology <sup>†</sup>

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**Abstract:** Virtual reality architectural design can make people in the virtual building environment and even urban space, with different angles to peep or appreciate its external space and interior space dynamic image and layout features. It is produced by the integration, than the model or renderings more image, complete and vivid. Thus, VR technology to virtual reality and real boundaries have become “established facts”, it seems to achieve a virtual and true seamless connection. From the cognitive point of view, this will make Cartesian “mind-the main” and Merleau-Ponty’s “body-the main” trend of unity? Obviously, this problem must be from the human, technology and the relationship between the three aspects of the technical philosophy of phenomenological reflection.

**Keywords:** VR; visual perception; body-subject

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## 1. Introduction

Architecture is a three-dimensional art. But for a long time, the architect’s design was restricted to two-dimensional drawing tools. Today however, advanced computer graphics in the catalysis of information technology revolution in the ability of analysis and data control manufacturing technology, provide technical means unprecedented powerful form of architects to design and build a dynamic and complex.

The “virtual reality” (VR) is a comprehensive interactive computer graphics technology, which uses computer generated objects and a simulation environment, through a variety of sensor devices to enable users to “input” to the environment, realize the direct interaction between the user and the environment. But it is worth noting that this is a new cognitive experience, the most important feature is that the user’s perception of the experience of the world and the boundaries of cognitive desalination. Moreover, in the process of constructing virtual reality, there is a widespread interaction between users and designers. Because virtual reality positioning in perception, and perception is a subjective and objective interaction field, many factors data containing differences in subjective feelings difficult to quantify, which means that the virtual reality is not a one-way process completely by the designer provides, and need to adjust according to different users’ subjective feelings. In other words, the user is one of the designers themselves, and many designers often use it as a user to improve their design. Because the digital processing can adjust and adjust in time, virtual reality is constructed as an open artificial reality. This paper attempts to reflect on the visual perception base of architectural design and the phenomenology of Merleau-Ponty’s “body-the main”.

## **2. The “Visual Perception” Foundation of Architectural Design**

The completion of architectural design is based on the visualization, visualization and processing of sketches, drawings, samples, plans, plans or ideas. It is the premise of image creation. Architectural design, interior design and landscape design are essentially of formative activities. Since it is a form activity, it is necessary to make use of the particular visual perception mode of thinking. Visual thinking refers to the so-called sense of visual form, with the ability to think in the form of language, using graphic language and painting media to see the description of the ability and thinking. Visual thinking is a way of thinking using visual products-seeing, imagining, and painting. Perception is actually an operation, an operation of perception. When thinking is externalized in the form of sketching imagination, it can be said to have been illustrated.

Today, the advances in computer technology are creating another revolution in the field of architecture, design, manufacturing and construction. Architectural design can also be based on the VR system: Architects and users can use the computer to design activities. The system no longer uses the traditional two-dimensional interaction method, but carries on the direct three dimensional design, they provide each kind of input equipment and the hypothesized environment carries on the interaction. Designers can build a structural component model in the computer, and can also directly produce corresponding assembly parts with numerical control processing technology, thus shortening the cycle of architectural design and construction. But it is worth noting that this is a new cognitive experience, the most important feature is that the user's perception of the experience of the world and the boundaries of cognitive desalination. There are two main manifestations of this limitation. It is a feeling of the body's function becomes more important, the main connotation of the subject not only is the soul of the cognitive and practice based on rational mind cognition, this change makes the body become an important connotation of the subject, which leads to the “body subject”. Second, the body of their direct perception are completely shielded, one can only imagine the integration of visual, auditory and tactile sensation, for there is no truth to security consciousness, even the body immersed in the virtual and reality by mixed intelligent environment.

No doubt, this will worry many humanists: real and virtual, digital and analog together, the prototype will become increasingly difficult to identify, people will not be able to find out what they see. In modern times, Descartes, the only theoretical master of the west, made a strict distinction between the sensible body and the rational mind, and took the dualism of mind and body as the basis of science. In Descartes's view, bodily perception is unreliable, but a rational mind can reveal the essence of the world. However, the emergence of virtual reality poses an unprecedented challenge to the body and mind relationship set by Descartes: “virtual reality” is perceptual perception. Therefore, in the discussion of the philosophical issues of virtual reality, many people think that virtual reality shows a position of anti Descartes dualism of mind and body. Practice shows that the construction of VR technology, when the user is immersed in the virtual reality, the perception of the role of the body will appear more reality is more important, the relationship between human and virtual environment is no longer dominated by rational cognition, and is mainly the perception of relationship; and the so-called immersion is the only stay in the perceptual level without reflection, the virtual reality as the object of action and the environment.

First put forward the “body subject” (body-subject) the concept of a philosopher is the French existentialist philosopher Merleau-Ponty, he hoped that through this concept, Descartes has overcome the dualism. What he wants to show is that the source of the mind should be placed in the body and placed in the world, that is, the body and the subject are the same reality. He believes that the body is not only the subject of manifestation, but also the object to be seen. It is not only a phenomenon of existence, experience, but also a place where phenomena occur. Through the “body subject” the expansion of the space outside the body forms the background of consciousness—the perceptual world. He said, the body is not like other things in space, the body is neither in space, nor outside the space, surrounded by space, the body is in space, as hand to tool. This extension of the body subject is consciousness. At the same time, he said to the world is the life of the body, the process of perceptual connection body subject and the world as “the world body” (incarnation): on

the one hand, direct contact perception on external body subject to external objects; on the other hand, to the perception of the show, means the inner world [1].

There is no doubt that Merleau-Ponty's perception based VR has some implications. In VR, the reason why the world is the world that I perceive, one of the most important reason is that the perception of artificial: helmet and eyepiece allows the user complete artificial horizon; other sensory data gloves and data service makes the person is completely artificial. In a way, it is the artificiality of bodily perception that the body perceives, in fact, the pre processed virtual images and sensations that are the unfolding of the pre constructed world in artificial perception.

### 3. Conclusions

Architecture and other arts play an important and active role in human culture in the future, and creativity is one of the most important factors. The design is based on the needs of human existence and development, and creates an apparatus or article with certain aesthetic value and practical function. Therefore, design is a purposeful and predictable art activity. With the continuous penetration of modern technology on the design concept, computers and audio-visual technology also provide attractive force and speed of drawing tool for the designer, the architectural design of the visual basic is undoubtedly a great impact. We must pay attention to the "why" to adopt these techniques, a deeper understanding of the purpose of the design is the key of the development is to achieve the new energy we desire.

Because of this, to fully understand the construction of VR technology, we must also consider the relationship between human, technology and the world of the three technical philosophy level. Don Ihde philosopher of Technology (Don Ihde) will be summarized, and relationship of the world into four kinds: reflect (embodiment) (hermeneutic), the relationship between hermeneutics, he (alterity) and background (background) [2], if the thinking from the four aspects, and the virtual reality of the three world we can be like a relationship, such as technological determinism and simulation from the perspective of further understanding of virtual reality: (1) reflect the relationship shows that the virtual reality is the extension of human perception, it makes people feel the world wider and more depth; (2) the relationship between hermeneutics shows that virtual reality is extended human cognition, it enables people to specifically examine people's understanding of the world; (3) that he, virtual reality is the projection of human desire, it makes people can appreciate the subject in People desire in the world of life; (4) the background show that the relationship between the virtual reality can form a relatively independent life in the world, and the reality may coexist and expand the life world, it shows the possibility of coexistence of people and technology, that is the construction of the world with the practical process of the continuous extension. Therefore, the virtual technology and virtual reality is generalized as the people of the world—the perception, understanding, desire and the construction of the world—the new development, rather than a last ditch over the main object.

However, in the contrast debate of VR technology, the key lies in the moderation of media and the integration of media. In graphic communication, freehand painting still has charisma, comfort and effectiveness. Thinking about the whole process from the diagram, we can see on the screen of the computer graphics is just one part of it, its meaning and rich changes depending on the design is the ability to feel the strength, and the ability to feel and depends on the designer experience visual performance. Therefore, "spiritual or cultural life obtains its structure from natural life, and the subject of thought must be based on the existence of the body of the subject." [3]. As the subject, precedes all thought and understanding and works with his own body, colleagues, and things; it exists as a body with a subject. The essence of the body exists in its use. Use the body, in the most primitive sense, to move the body into the world and take the place. By using the body, the body transcends and transforms its natural forces and becomes the birthplace of meaning.

**Conflicts of Interest:** The authors declare no conflict of interest.

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