Chapter 69
Designing Pervasive Virtual Worlds

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ABSTRACT

Virtual worlds can be approached in a broader sense of that which refers to common conceptions of virtual reality and immersive environments. This chapter explores the design of virtual worlds in a time when much contemporary media is accessed through and simulated by software. Today, the main extensions of man are cognitive skills and experiences. Software is a way of seeing the world; it plays a central role in media design and distribution. Software and perception of reality are intertwined and pervasive: media not only exist in form of software but the shape and properties of media are also designed with software. In order to understand the implications of computational media, it is necessary to re-articulate problems in a creative and virtual manner. At the end of the chapter, the author speculates on design approaches and presents some examples developed by him.

INTRODUCTION

Today, many types of media have been translated into electronic forms and formats. One of the main consequences of this situation is that most forms of media are now created, accessed, distributed, shared and modified by electronic means. In this scenario, the computer has become one of the most important media because it allows not only to simulate old media but also to extend and virtualize them. The interrelationships of hardware, software and code are the fundamental basis of modern media.

But mastering a computer is not the only necessary skill for media design. It does not fully encompass the complexity of the medium. In a reverse direction, the challenges for designers of media have broadened. Among other complexities, we mention three. First, media is designed with software, which implies to learn how to use software but we also need to understand how the computer works in order to create our own software and different manners to design media. Second, as the massive adoption of computing and human-computer interaction evolve, it also comes with the establishment of conventions, i.e., determined structures based on patterns and practices. To what extent is it useful to move outside

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these conventions? How can we identify conventions? How can we embrace and criticize them for the sake of creativity? Third, software shares some features with natural language and culture, specially regarding its evolution. It happens that some changes can be observed easily but some others are more difficult to notice. For instance, in the fashion industry trends can be celebrated from year to year, but this is not the case in natural language where changes occur at the level of idioms, jargon, syntactic and semantic models of language (new words, new meanings, new languages, etc.). In software, we can observe new features and styles from one version to another, but it is more difficult to detect evolutions in data structures, programming paradigms, algorithms or abstractions.

In this chapter we revisit the notion of pervasive virtual worlds, as previously investigated in 2011 (Reyes, 2011). Our intention with this notion was to understand the emerging environment that combines analog and electronic media. Our focus was on everyday life, where we are constantly extended by portable devices but also by amplified objects in the environment. The ecosystem of connected objects and the processes and actions we can perform on them give rise to electronic realities, which are as real as the 'real world'. So the task is to take advantage of the coupling of analog with electronic in order to design augmented experiences by creatively and constantly questioning the virtual and real worlds. The notion of 'virtual world' is approached in a broader sense of that which refers to common conceptions of virtual reality and immersive environments. We rather consider the virtual as a state of being, thus making reference to the philosophical strand.

In the following section we start by reviewing the notion of 'pervasive virtual worlds'. Then we discuss software as medium, taking as a departing point the definition of media elaborated by Marshall McLuhan, which observes them as technologies that extend or restrain man. From here, we will then put particular attention on media within the continuum of technological evolution and innovation. And to conclude the first section of this chapter we present and discuss two analytical maps of the computing medium, which were created from of its main forms and structures. Through these maps, we try to identify patterns and trends in the era of cultural computing.

The last section of this chapter explores a couple of examples inspired by the idea of pervasive virtual worlds. Our examples are informed by research on digital humanities, speculative computing, aesthetic provocations, design by disruption, experimentation and media art. The projects and experiments selected for the discussion serve also as conceptual tools to think about the virtualization of man.

BACKGROUND: PERVASIVE VIRTUAL WORLDS

The classic definition of virtual worlds, also referred to as 'artificial worlds' or 'virtual environments', comes from research on computer virtual reality. The first innovations in this field started during the 1960s. Prominent examples of pioneering systems include the "Sensorama Simulator" by Morton Heiling in 1960, and the "Ultimate Display" by Ivan Sutherland in 1965. Short after, the first artistic virtual worlds were developed. David Em, while artist in residence at NASA, created "Aku" (1977), "Transjovian Pipeline" (1979) and "Persepol" (1985). From this tradition, a virtual reality system has been defined as

… an interface between a man and a machine capable of creating a real-time sensory experience of real and artificial worlds through the various human sensory channels. These sensory channels for man are: Vision, Audition, Touch, Smell, and Taste (Burdea 1993, cited by Boulanger 2008).