TOWARDS AN ATLAS OF METAVERSE IN ARCHITECTURE: TIMELINE 1980-2023

Giovanni Caffio[1], **Maurizio Unali**[1]
[1] Università degli Studi "G. d'Annunzio" Chieti-Pescara
Department of Architecture
giovanni.caffio@unich.it

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METAVERSE
EPHEMERAL ARCHITECTURE
VIRTUAL WORLD
VIRTUAL CITY
VIRTUAL LIVING

This study presents the latest results from a project aimed at creating an atlas of the Metaverse in architecture and design. The project is structured as an interactive conceptual map, published online, and spans from 1980-2023. It catalogs and thematically classifies some of the primary configurations of 'virtual living' and the most significant conceptual and visual references that have contributed to this idea. The subject is vast and complex, with applications in research and teaching that extend to various digital space-time applications, such as social media, virtual worlds, video games, conceptual maps, and current applications of artificial intelligence and NFTs.

This interdisciplinary project requires thematic studies and surveys primarily aimed at understanding and historicizing the phenomenon of the Metaverse. This is the main objective of the research presented here, representing the final stage of a long journey that explores the various aspects of virtual living representation history. The topic deserves further study, both in relation to the rich historical tradition that has always inspired the science and art of representation, and in relation to the techno-cultures of processing 'Virtual Living'. It encompasses various professions and languages within the expressive-communicative apparatus that characterizes the Metaverse.

INTRODUCTION

Continuing our long-standing exploration of various aspects of 'Virtual Living' through research and teaching (Caffio & Unali, 2022), we introduce a model for visualizing and processing the concept of the *Metaverse* in architecture and design, conceptualized as a thematic atlas.

This study considers the evolution of the timeline structure that has so far guided our research on the history of the *Metaverse*. It seeks to delve into and update the most notable works that have influenced the development of visual representation codes, with particular focus on 'model' projects. These projects allow us to trace an evolutionary thread through the phenomenon.

Considering the intriguing developments of the *Metaverse* concept and keeping abreast with recent techno-cultural studies on the topic, it is essential to contribute to the ongoing historicization of Virtual Living representation.

The initial step appears to involve classifying and comparing virtual spaces within a historical and authorial context, and against a backdrop of global references. From this, representations arise that can be interpreted, narrated, and 'historicized'. Emerging is a vast and complex topic, encompassing various forms of 'Virtual Living'. These range from daily interactions on social media to powerful virtual world platforms, from video games to authorial virtual cities, and from conceptual maps to artificial intelligence applications. This sphere also includes *NFTs* and the ongoing research into the new *Metaverse* in VR, forming a fascinating utopian socio-cognitive thesaurus and more.

Interdisciplinary representation projects spark creativity and advance technologies. These configurations necessitate study and thematic detection processes to historicize the phenomenon. In the following pages, a potential study model on this topic is outlined, structured like an atlas. This model is represented by an interactive conceptual map, structured by a timeline from 1980 to 2023 (Figure 1), and published online.

Fig. 1 S Graphic synthesis of the structure of the new (release 2023) concept map elaborated, titled *Towards an Atlas of Metaverse in Architecture: timeline 1980-2023*. Some of the main historical configurations of virtual living and its most vital conceptual and visual references have been cataloged and thematically classified. Highlighted is the interactive structure of the matrix and part of the timeline (at the bottom). Posted online at www.lineamenta .it/a vc22

This representation enables scholars to make a structured initial reading of the phenomenon, delve into the most significant events, stimulate debate, and trigger further thematic insights. Lastly, a caveat for researchers: mapping the evolution of the *Metaverse* and viewing the phenomenon as the result of interdisciplinary relationships means accepting that such research should be considered a 'work in progress'.

CONCEPTUAL MAP AND TIMELINE STRUCTURE: RESEARCH METHODOLOGY AND CONTENTS

The project for the conceptual map representation is a result of a research methodology and coordinated effort. It can be summarized into four main phases.

In the first phase, we hypothesized a historical periodization based on our study of 'Virtual Living'. This timeline is divided into two macro-areas, each further divided into two homogeneous temporal areas (refer to chapters 1 and 2).

The second phase involved cataloging and classifying the primary online spaces that suggest the idea of the *Metaverse*. These were chosen based on their chronological timeline, authorship, and representational characteristics.

During the third phase, we studied the main events (projects, exhibitions, books, etc.) and the most significant conceptual and visual references that have shaped the idea of the *Metaverse*.

In the final phase, we conducted an initial experimental verification of the model (semantic order comparison and technical-perceptive compatibility test with Information and Communications Technology methods). This was followed by subsequent integrations or modifications.

THE HISTORICAL-TEMPORAL DOMAINS OF THE TIMELINE

For Reflecting on our selected time frames for historicizing the observed phenomenon in the atlas is crucial. We must remember that the history we describe spans a broad timeframe from the 1980s to the present. This period is complex and filled with interdisciplinary references that, given the fast-paced nature of techno-cultures, underscore the laboriousness and richness of the ever-changing projects involved.

To represent these complexities, we must find conceptual syntheses that can be unified on the home page of the interactive map published online. This is a necessary step to convert the vast available information into knowledge. The periodization represented in the timeline has shaped the entire communication project. It is also important to clarify a methodological point: while the history of 'Virtual Living' seems fluid and unified, our research identified considerations that necessitated dividing the timeline into different historical-thematic moments. These divisions have shaped the map's structure. The periodization we've adopted serves the previously stated objectives and suggests preferential 'contingent' experiments to the reader. These can be modified based on subjective considerations.

After conducting a series of experimental checks, we divided the timeline of the map (refer to the x-axis, from left

to right, in figure 1 into two main historical-thematic areas. Each of these areas is further divided into two periods, as detailed below.

Towards an Atlas of the *Metaverse* in Architecture: timeline 1980-2023:

1. From radical origins to international consecration: from postmodern Cyberspace to the digital architecture of the early millennium.
   1.1. The experimental beginnings of 'Virtual Living' in the '80s: between Postmodernism, Deconstructivism, Cyberspace and the first web communities;
   1.2. The consecration of digital architecture, from the '90s to the early years of the new century.
2. Where are we going?
   2.1. From the new digital parametricism to post-digital reflection;
   2.2. From Facebook's *Metaverse* to artificial intelligence and beyond.

The first temporal area of study –1. From radical origins to international consecration: from postmodern Cyberspace to the digital architecture of the early millennium– was developed by Maurizio Unali and represents the beginnings of 'Virtual Living', from the projects of the early '80s (especially in the context of the poetics of the ephemeral in architecture) to the Venice Architecture Biennale 2000 and its subsequent influences.

The second area of study –2. Where are we going?– was developed by Giovanni Caffio and analyzes some of the most recent events of 'Virtual Living', those representations that have most shaped the idea of the *Metaverse* characterizing the beginnings of the new millennium.

From radical origins to international consecration: from postmodern Cyberspace to the digital architecture of the early millennium

The houses posed unexpected challenges for the modellerPrevious studies, such as those by Caffio and

Unali (2022), have already highlighted the history of 'Virtual Living', which we will not delve into here. These studies observed the phenomenon from the perspective of ephemeral architecture, the main relational laboratory of the various projects involved. They traced the origins of 'Virtual Living' from the early 80s to the beginning of the new millennium.

A complex time span that, especially at the educational level, we have included between two international events: from the first Venice Architecture Biennale of 1980, *The Presence of the Past*, directed by Paolo Portoghesi, to that of 2000 conceived by Massimiliano Fuksas.

In this new phase of research, this broad time span has been further specified, dividing it into two parts and expanding the projects displayed in the atlas:

1. The experimental beginnings of 'Virtual Living' in the 80s: between Postmodernism, Deconstructivism, Cyberspace and the first communities on the web;
2. The consecration of digital architecture, from the 90s to the early years of the new century.

Chapter 1.1 presents the initial projects of 'Virtual Living', which laid the foundation for digital architecture. These ideas originated from the techno-cultural experiments of the early 80s and, notably, from the invention of the concept of Cyberspace. This concept has various interpretations, ranging from punk to postmodern.

The map-timeline (www.lineamenta.it/avc22/) includes numerous examples. For instance, in the literary-cinematic dimension, it references the cyberpunk themes in William Gibson's novels, particularly the 1982 short story *Burning Chrome*, Ridley Scott's film *Blade Runner* (1982), and Robert Longo's set designs for *Johnny Mnemonic* (1995). In the fluid dimension of the web, it highlights publications such as *Cyberspace*, edited by Michael Benedikt (1991), and *City of Bits* by William J. Mitchell (1997). For the first accomplished habitable virtual spaces in the offline digital dimension, it points to *SimCity*, created by Will Wright in 1989. In the

online dimension of 'Virtual Living', *Active Worlds* (1995) and *Second Life* (2003) are featured as influential platforms for what we now generally refer to as the *Metaverse*. In terms of digital incursions into reality (and vice versa), the urban scale connectivity system *Global Village Square* by Derrick de Kerckhove (2003) and the McLuhan Program in *Culture & Technology*, first established in 1996, is noted. From the creative territories of digital art, the projects of virtual environments derived from ASCII art (from the late '70s) and Pixel Art (from the 1980s) are highlighted. Playful cityscapes, drawn in isometric axonometry by the Berlin collective eBoy, founded in 1997 by Kai Vermehr, Steffen Sauerteig, and Svend Smital, are also noteworthy.

The second time frame identified as 1.2 –The consecration of digital architecture from the '90s to the early years of the new century– shows us the international acceptance of the digital revolution in architecture at the start of the new century. This era possibly encompasses the most notable aspect of the idea of space-*Metaverse*. Many projects depicted in the atlas (see www.lineamenta.it/avc22/) include the Biennale *Less Aesthetics, More Ethics* by Massimiliano Fuksas in 2000, *transArchitettura* of 1992, *The Virtual House Competition* in '97, *Salt Water Pavilion* by Kas Osteruis and the *HtwoOexpo* by Nox in '97, Fumio Matsumoto's projects *Infotube* and *Ginga* from 1999, the USA pavilion at the 2000 Biennale, and *Second Life*, launched in June 2003 by the American company *Linden Lab* and its founder, physicist Philip Rosedale. Other notable works include artistic installations by Patrick Moya, the *Humble Masterpieces* exhibition curated by Paola Antonelli at MoMA, virtual architectures by Luca Lisci, *Virtual Renaissance* and studies on *Second Life* by Mario Gerosa (2007, 2008), the *Reflexive Architecture* projects, the *School of Architecture and Planning*'s educational experiments at the University of Auckland, Giorgio Armani in *Second Life*, musical events representations, the '*Metaverse* Museum' by Nicola Reinerman, and the *RMB City* designed by Chinese artist Cao Fei from 2007-2011.

Where are we going?

The To comprehend the question, 'Where are we going?' amid the swift transformation of ongoing techno-cultural and aesthetic models, we've attempted to highlight some significant ongoing changes. These changes connect economic and social revolutions to aesthetic representations within the project of virtual spaces.

The global economic crisis linked to subprime and real estate, which originated in the United States in 2006 and took place between 2007 and 2013, serves as a significant turning point. This crisis, coupled with the subsequent emergence and affirmation of hypercapitalist ideologies (Piketty, 2018), which attribute the global recession to excessive banking system regulation, has led to certain foundational themes of the post-'great recession' neoliberal economic model. These themes seem to share unique affinities with new ideas of parametricism, as presented and articulated by Patrik Schumacher on several occasions (Schumacher, 2011; 2012; 2016). The emphasis is on individualism, market efficiency, adaptability and flexibility, iconism and market competition, as well as the significance of immaterial data flows and automated mechanisms in controlling operators' choices.

Both parametricism and neoliberalism have been subject to criticism and have sparked debates that appear to be interconnected. Neoliberalism has been criticized for exacerbating socioeconomic disparities and its environmental impact (Piketty, 2020), while parametricism has been accused by some critics (Moore, 2016) of prioritizing form over functional and social considerations in architecture.

For the sake of brevity, we'll jump ahead. These profound cultural, technological, and financial transformations provide fertile ground for a new idea of virtual space that seeks to transcend the current Internet. This concept is being marketed under an appealing new brand: the *Metaverse*, a term first introduced in literature in the 90s (Stephenson, 1992).

The recent development of the 'Virtual Living' concept was initiated by Mark Zuckerberg, who rebranded his

holding company as *Meta*. This signifies his company's future association with the new idea of the *Metaverse*. According to Zuckerberg, the *Metaverse* is:

> an embodied internet where instead of just viewing content, you are immersed. And you feel present with other people as if in places, experiencing different things you couldn't do on an app or a 2D web page, like dancing, for example, or doing different kinds of fitness (Newton, 2021).

However, the concrete realization of the *Metaverse* requires a complex and synergistic blend of technological and financial systems that seem currently unavailable. In simple terms, these systems include a ubiquitous and interoperable network, an expanded version of VR and AR, and an economic-financial infrastructure based on cryptocurrencies and *NFTs*.

NFTs and cryptocurrencies are already fundamental elements in the *Metaverse*. They establish real and lasting value for digital objects, supporting a 'free' economy without apparent centralized authorization.

Starting with *Everydays: The First 5000 Days* by digital artist Beeple, which was the first digital work valued at 69 million dollars (Kastrenakes, 2021), *NFTs* have permeated various sectors, including architecture and design. Notable works include *Mars House* by Canadian artist Krista Kim (Harrouk, 2021), virtual furniture by Andrés Reisinger (Cormack, 2021), and architectural renderings by self-taught designer Alexis Christodoulou (Hahn 2021).

Even established architectural studios are creating their own virtual spaces. Noteworthy examples include the virtual gallery by Space Popular for the Spanish organization *Fundación Arquia* (Fairs, 2020); *NFTism*, a virtual gallery by Zaha Hadid Architects that explores new forms of artistic production and cultural experiences related to digital art (Niland, 2021); and *Liberland Metaverse*, a virtual city modeled after the self-proclaimed Free Republic of Liberland, designed by Zaha Hadid Architects. Other examples include *Viceverse*, a virtual office in Decentraland

for *Vice Media Group* employees, designed by BIG studio (Finney 2022); *Coral Arena*, an *NFT* artistic film created by the architecture studio OMA in New York, artist and designer Charlotte Taylor in London, and creative studio Nicholas Préaud in Paris (Wade, 2021); and *Deep Himmelblau*, a research laboratory by Coop Himmelblau that has been experimenting with digital spatiality using artificial intelligence since 2016. Lastly, *Apple*'s recent presentation of a VR viewer foreshadows exciting developments in the *Metaverse*'s uses and applications.

We invite readers to explore the *Metaverse* atlas we've created to better understand 'Where we are going', thereby deepening and expanding the various projects we're working on. You can find the atlas at www.lineamenta.it/avc22/.

CONCLUSIONS

In our current era of 'Virtual Living', some authors like Lluís Ortega, David Sax, Kim Cascone and Mario Carpo refer to it as 'post-digital' (Unali, 2019). Others see it as a 'stalemate' or a time for 'reflection'. Both research and teaching need to broaden their studies on the history of the *Metaverse* concept. This mirrors the situation from the early 21st century when we also questioned 'where are we going?'. Similar to that time, the primary action seems to be what Peter Eisenmann described as the 'late style' in relation to architecture's languages. The American architect, as early as 2008, suggested that 'this is not the time for the new'. He wrote, "While everyone wants to be at the forefront, investigating the ancient, looking inside the old, in the specific domain of their discipline and in its history, could be a way to deal with today" (Eisenmann, 2008, p. 5).

This perspective, when applied to today's techno-culture that envisions the idea of the *Metaverse*, confirms the importance of continuing to reflect on the historicization processes of 'Virtual Living' (both online and offline) in its

many forms. The exploration of ideas –utopian, radical, immaterial– can be experienced through representation projects, as 'virtual living means representing!' (Unali, 2008).

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