

Virtual worlds - Perspectives and issues

GENERAL INTRODUCTION

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in charge of Digital Transition and Telecommunications
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Essay on the representation and the imaginary of virtual worlds
Thierry Dufrêne.

In 1940, Adolfo Bioy Casares conceived in *The Invention of Morel* (1940) the most convincing of the “virtual worlds” of our contemporary era. During the years 1960-1970, to the meeting of the lunar space adventure, the development of the mass media, the utopias of the youth and the psychedelism, science fiction – Wells, Asimov and K. Dick – imagines in its turn “virtual worlds”. In the following decade, after the hyperrealism of the visual arts, the simulation and the seduction of the fake fascinate the researchers and the artists as much as the engineers. With the Internet, “virtual worlds” became the norm for human-computer interfaces and computer networks. Interactivity (multi-players) and simulation offer to these worlds what Étienne Souriau called in 1943 an “absolute possibility”: An imaginary of connection is born. This article raises the question of a new pact of anthropological extension where human emulates their double and those of the world. But when immersive devices and interfaces (3D glasses and haptic gloves) will be replaced by transplants to the human body, as transhumanism foretells, what will the meeting of the actual and the virtual bring?

VIRTUAL AND AUGMENTED REALITY GAMES AND TECHNOLOGIES

- 20 Virtual worlds in the world of video games
Leroy Athanassoff.

Virtual worlds have become an important part of the video game world. They allow gamers to immerse themselves in imaginary worlds and have unique experiences. Virtual worlds can take different forms, whether they are online game modes, immersive virtual environments or social platforms, and can sometimes be associated with virtual reality. Virtual reality offers total and absolute immersion, realizing the ultimate dream of putting the player inside the dream. However, the challenges it faces in terms of design, friction, and accessibility should not be underestimated.

- 25 Virtual worlds, new perceptions, new representations
Thomas Tassin.

Virtual worlds are often – wrongly – considered as the next Internet.

This assertion prevents us from thinking about their real filiations, the deep reasons of their emergence as well as the lasting effects they could have on our relation to the world and to society. We propose here to go beyond an analysis centered on immediate uses, whose relevance is limited concerning a technological and artistic innovation of rupture.

By looking at the arts, especially visual arts and their different supports, it appears that virtual worlds are very close descendants.

Because of this heritage, metaverses are part of the continuous evolution of our perception, our interactions and our representations of reality.

The perspectives they bring are to be considered under this prism.

32 **What digital tools for tomorrow's training?**

Interview of François Taddéi by Grégoire Postel-Vinay.

Presentation of François Taddéi

Founder and president of the Learning Planet Institute (formerly the Center for Interdisciplinary Research - CRI in French), François Taddei is a general engineer of the Ponts des eaux et des forêts. An internationally renowned researcher at Inserm, he now devotes himself to the sciences of learning and in particular to the notion of "*Planetizen*", in order to enable each of us to learn to take care of ourselves, others and the planet.

François Taddei advocates for a large-scale collaboration to build – with the support of UNESCO – a learning planet and the development of learning communities working together to find sustainable solutions in the education and health sectors, as well as in the achievement of the Sustainable Development Goals (SDGs).

42 **What to expect from virtual and augmented reality for medical applications**

Jean-Baptiste Masson.

Technologies related to mixed reality (XR), although not an innovation, are experiencing considerable growth due to recent advances in computing, machine learning, and the drastic reduction in the cost of visualization devices. These advances pave the way for expanded use in the medical and healthcare sector. However, like any emerging technology, adopting mixed reality in the medical field must overcome many challenges. Despite these obstacles, future developments in computer vision applied to medicine, mixed reality rendering methods, and reflection on the medical decision-making process are expected to transform these technologies into undeniable assets. They will benefit not only practitioners who implement them, but also patients who will enjoy optimized medical support. In this text, we address both recent advances and challenges inherent in the medical use of these technologies.

51 **Training in augmented reality and virtual worlds**

Jean-Michel Lavallard.

Augmented reality and virtual worlds (AR/VW) training is an innovative approach to learning that uses advanced technologies to create virtual environments in which learners can acquire skills and knowledge in simulated situations. This technology offers significant advantages, including immersion, repeatability, safety, and personalization. However, the implementation of these simulations can be costly and complex, requiring advanced technological equipment. Scientific studies have shown that AR/VW training can improve engineering students' understanding of

technical concepts, improve medical students' performance in disease recognition, improve learners' motivation, and improve engineering students' collaboration and communication skills. However, some potential problems, such as nausea and headaches, have also been reported.

53 **Disability, accessibility, and training in virtual worlds**

Sylvie Sanchez.

Virtual worlds, whether they are used to create metaverses or video games, are designed to meet a standard need, marginalizing – as in the real world – people with disabilities.

So how can we hope for virtual worlds that are accessible to all?

It is to these issues that the association Créative Handicap, through its C.I.A.R.A. (for Creation, artificial intelligence, and augmented reality) training course, responds by training young people with disabilities to jobs in digital creation. Accessibility, the representation of disability, the new sensorialities to be explored, but also the infinite possibilities of new technologies and the new professions that they generate are all opportunities to be seized by disabled people, as long as they are given the possibility of being actors of it.

METAVERSES

57 **Who are the players of the metaverse?**

Paul Jolie & Emmanuel Caquot.

The idea of a virtual world materialized in 1997 in France, where Canal+multimedia opened *Le Deuxième Monde*, which allowed players to move, through their avatar, in a 3D reconstruction of Paris, thus forming a virtual community whose members called themselves “Bimondians”. Precursor of the metaverse, it is however closed in 2001, and it is in 2003 that *Second Life* of Linden Lab will know a first worldwide success. The idea has a renewed interest on a larger scale in 2021 with the announcements of Marc Zuckerberg. While media interest has since waned with the difficulties encountered, the subject remains very active in terms of investments in the United States and at least four Asian countries, with many groups developing platforms and applications. Europe has a mainly regulatory and defensive approach, but nevertheless has assets, including in France, and ambitions that can be based on Dassault Systèmes, Ubisoft, Atos, telecom operators and a network of start-ups.

70 **Testimony of the association France Meta Interview with Pierre PAPERON, president of the association**

By Éric Freyssinet.

Presentation of Pierre Paperon

Pierre Paperon is an engineer from Arts et Métiers and has an MBA from HEC. He has been a consultant and managing director in multiple companies including McKinsey, Havas, Apple, Danone group, Lastminute.com... For the past eight years, he has been advising governments and companies on the use of blockchains, NFT and Web3 (anti-money laundering, cinema, “*grands crus classés*” and “*primeurs*”, agriculture, soccer stadium...). In January 2022, he created the France Meta association, which has 1,300 members.

Pierre has seven children, attempted Everest, written three books, and was an officer on the Redoutable for two years.

75 What is the real potential of the metaverse?

Frédéric Cavazza.

The metaverse, a concept that originated in the cyberpunk literature of the 1980s, has been unleashing the passions of geeks and entrepreneurs since Facebook's strategic reorientation in 2021, which has made it its new development lever. As a point of convergence for a wide variety of uses, the metaverse crystallizes the hopes and fears of many observers whose understanding of its potential is blurred by projects whose sole objective is to achieve a quick gain in value based on promises that they will be unable to keep. In order to understand what metaverse is or is not, one must step back and put aside one's preconceptions in order to have a pragmatic, and above all realistic, perception. No, the metaverse is not the future of the web, nor is it a disruptive technology, it's a generic term to describe an immersive media that includes online games and virtual universes already used by hundreds of millions of users, as well as innovative services that are more or less mature and whose viability has yet to be proven. Take it for granted: today's gamers are tomorrow's virtual users.

80 The metaverse at the service of fashion and luxury?

Pascal Morand & Marine Peyrol.

The digital revolution continues inexorably, invading the world and our lives. The arrival of the metaverse, stimulated by that of the Web3, symbolizes the sharp acceleration of virtualization. The metaverse is a source of increased creativity, of new forms of deployment of the imagination, of new individual and collective experiences. The article shows how it is natural for fashion and luxury brands to seize upon it. It explains the resulting innovations and their modalities. It also examines its limits as well as its impact on human identity and otherness, and on the relationship to fashion and luxury that can result from it.

**86 The adoption of the metaverse:
Virtual worlds and the luxury industry**

Nelly Mensah.

LVMH is exploring the potential of virtual worlds to connect with customers and increase the desirability of its brands. LVMH sees virtual worlds as a way to appeal to younger, tech-savvy generations, as well as to make more emotional connections with customers, with the metaverse market predicted to be worth more than \$1 trillion in annual revenue by the next decade. LVMH is exploring three key areas in its approach to virtual worlds: Engaging the next generation on established and emerging metaverse platforms; making its own platforms more immersive; and using "digital twins". However, challenges include navigating the regulatory landscape of virtual worlds, the need to replicate the craft and art of the physical version to the virtual, and the limited adoption of virtual reality.

LEGAL AND ETHICAL ISSUES

91 The effect of virtual worlds on the judicial investigation

Noémie Caron.

Virtual worlds bring with them new forms of specific offences and cyber threats. They increase the imbalance between the power of the digital giants, and the need to adapt justice and institutions.

To ensure the French digital sovereignty, the legal framework must be adapted to these new challenges.

96 Legal and ethical issues raised by virtual worlds

Corinne Thierache, Caroline Leroy-Blanvillain
& Hanna Le Derrien, ALERION AVOCATS.

The social, political, economic, legal, and, above all, ethical issues raised by the development of metavers and of other virtual worlds bear witness to the increasing porosity between the real lives of human beings, and the virtual one of such worlds' users.

103 Ethics, a brake on innovations and digital interfaces?

Dr Laure Tabouy.

These are exciting times in 2023. If technological innovation appears to be a new Eldorado, ethics is taking its place at the heart of innovation, business and research strategies. The challenge is to learn how to ride the wave of innovation and technology, and create opportunities that will change our daily lives, while recognizing that we must anticipate the excesses of their use. The acceleration of innovations makes it essential to reflect on the societal, ethical, and legal issues related to their conception and development, their uses, their purposes, and their consequences. The design of interdisciplinary safeguards, evaluation, and monitoring systems, as well as supervision and repression systems, and the definition of a governance system adapted to the sociological, ethical, and legal values of the different countries are currently emerging in France, Europe and throughout the world. But in all these initiatives and reflections, the key piece that holds it all together is, in my opinion, the place that ethics takes in this puzzle, because it will allow a better acceptability of digital interfaces, while inviting all stakeholders and all actors, from inventors to users, to position themselves in relation to these innovations.

MISCELLANY

112 The digital barometer – the 2022 edition

Michel Schmitt & Matthias de Jouvenel.

The digital barometer is a recurring survey that focuses on the digital equipment and uses of the French. We present here a number of results from the 2022 edition of this barometer. People in their sixties have become Internet users at the same level as younger people, and equipment in connected objects continues to grow rapidly, whether in security, household appliances, or health. The uses that have progressed during the lockdown continue in the long term, and thus show their adoption. Digital technology is becoming more and more essential: more than 60% of respondents say they cannot do without the Internet for more than a day, especially for email.

Issue editor

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