

Techno-Pop: Virtual Doubles and Dystopian Futures Around 1984

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Abstract

As part of wider research aiming at reestablishing the role of postmodernist media art practices to better understanding the current state of the relationships between art and technologies, it feels urgent to reconsider the discourses on virtuality brought forward in the 1980s on the issue of the double, or else on some proto avatars developed around 1984. The essay is articulated around three case studies, those of American artist Rebecca Allen's animated mannequins, Italian collective Giovanotti Mondani Meccanici's bitmap alter egos, and British transmedia character Max Headroom developed by George Stone, Annabel Jankel, and Rocky Morton. At the crossroads of arts and computer graphics, these early virtual doubles allegorized the increasing media saturation of the postmodern times and in so doing anticipated more recent phenomena such as those of the avatar, the metaverse and the digital twin. Rather than adopting a monographic approach, the paper will explore common features between the three, contextualizing them within the history of the double in art—from the historical avant-gardes to the information age—, the condition of displacement typical of video and media art practices, their contribution to the history of animation, their proximities with the dynamics of worldbuilding peculiar of videogames, the cultural frame of postmodernism and cyberpunk, the connections with Electronic Dance Music, and their appeal as pop cultural artifacts.

Keywords: Postmodern; Media Art; Pop Culture; 1980s

Abstract

Nell'ambito di una più ampia ricerca volta a ristabilire il ruolo delle pratiche di media art postmoderne per comprendere meglio lo stato attuale delle relazioni tra arte e tecnologie, appare urgente riconsiderare i discorsi sulla virtualità avanzati negli anni Ottanta sulla questione del doppio, o su alcuni proto-avatar sviluppati intorno al 1984. Il saggio si articola attorno a tre casi di studio: i manichini animati dell'artista americana Rebecca Allen, gli alter ego bitmap del collettivo italiano Giovanotti Mondani Meccanici e il personaggio transmediale britannico Max Headroom sviluppato da George Stone,

Annabel Jankel e Rocky Morton. Al crocevia tra arte e computer grafica, questi primi doppi virtuali hanno allegorizzato la crescente saturazione mediatica dell'era postmoderna e, così facendo, hanno anticipato fenomeni più recenti come quelli dell'avatar, del metaverso e del gemello digitale. Piuttosto che adottare un approccio monografico, il saggio esplorerà i tratti comuni tra i tre, contestualizzandoli all'interno della storia del doppio nell'arte—dalle avanguardie storiche all'era dell'informazione—, la condizione di dislocazione tipica delle pratiche di video e media art, il loro contributo alla storia dell'animazione, le loro prossimità con le dinamiche di worldbuilding peculiari dei videogiochi, la cornice culturale del postmodernismo e del cyberpunk, le connessioni con l'Electronic Dance Music e il loro fascino come artefatti della cultura pop.

Parole chiave: Postmoderno; Media art; Cultura pop; Anni Ottanta

1. Introduction

As part of wider research aiming at reestablishing the role of postmodernist media art practices to better understanding the current state of the relationships between art and technologies, it feels urgent to reconsider the discourses on virtuality brought forward in the 1980s on the issue of the double, or else on some proto avatars developed around 1984. This specific year could be retrospectively identified as a turning moment towards an increasingly virtual society, both in socio-political and in cultural terms, considering the spread of personal computers, the predominance of television on the perception of reality, and a hedonist lifestyle based on wealthier living conditions in the Global North. The same year had been prophetically identified as pivotal four decades before, when British writer George Orwell imagined, in his namesake dystopian novel, a futuristic society in which people were no longer able to distinguish between reality and fiction, their minds being under the subliminal control of a totalitarian regime enacting its power through media (Orwell 1949).

A smart take at Orwell's ominous premonition was proposed by American company Apple when in 1984 they launched the Macintosh, the first personal computer in history “for the rest of us,” or else normal people who would use it for everyday activities, including work, leisure, and creativity. Filmed by acclaimed *Blade Runner* (1982) director Ridley Scott and aired on January 22, 1984, during the Super Bowl, the accompanying ad shows a mass of uniformed workers-prisoners marching in a grayish industrial complex and beholding with blank expressions at the speech of a mediated Big Brother-like figure. In plain contrast with the dark scenario, a woman athlete in colored sportswear runs through the facility and hurls a big hammer against the screen, metaphorically defeating the regime. At that point, a voice-over announced: “On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like 1984” (Apple 1983). The message was that the Macintosh intended to turn the traditionally passive television audience into one of active prosumers.

This paper is articulated around three case studies, those of American artist Rebecca Allen, Italian collective Giovanotti Mondani Meccanici or GMM, and British transmedia character Max Headroom developed by George Stone, Annabel Jankel, and Rocky Morton. Recuperating the old models of the mannequin and the robot, they have been chosen as examples of early virtual doubles that allegorized the increasing media saturation of the postmodern times and in so doing anticipated more recent phenomena such as those of the avatar, the metaverse and the digital twin. What they all had in common is that they took shape at the crossroads of arts and computer graphics, that they were open to integrate and even compromise with culture industries, namely television, and established a peculiar exchange with the world of electronic dance music or EDM, notably through collaborations with technopop acts: Allen with Kraftwerk, GMM with Alexander Robotnick, and Max Headroom with Art of Noise.

Rather than adopting a monographic approach, the paper will be developed around common features of the three of them, starting with an overview on the evolution of the experiments with the double in art from the historical avant-gardes to the information age. To frame them within a larger history of media art, there will be a focus on the effect of displacement, typical of early video art. Another aspect to be addressed will be the contribution of these innovative media experiments to the history of animation and, through references to their computer-generated nature, their proximities with the act of world-building peculiar of videogames. Clearly, Allen, GMM and Max Headroom will be also contextualized within postmodernism and cyberpunk, with attention on some features of these two cultural frames such as the idea of hacking applied to television, the connections with EDM, and their appeal as pop cultural artifacts. In conclusion, a few tangible examples of how they anticipated today's virtual doubles will be mentioned.

2. The Origins of the Virtual Double in Art

The possibilities of representing a human being in an artificial setting with a high degree of illusionism go back to the invention of perspective in the Renaissance, which in the 1990s Tomás Maldonado argued being still “the best ‘conventional’ representation achieved so far. [...] no other representation in the past has been able to respond better to our needs for an effective operational relationship—that is, communicative and productive—with the world.” (Maldonado 1993, 33). In his innovative treatise *De prospectiva pingendi* (On the Perspective of Painting, 1472–82), Italian painter Piero della Francesca collected his advanced studies on arithmetic, algebra, and geometry providing a new set of technical tools for drawing and painting illusionistic representations of reality. While most of the book is dedicated to perspective per se, bringing forward the theories introduced by Leon Battista Alberti in *De Pictura* (On Painting,

1435–50), the entire first part, titled *Disegno* (Drawing), described techniques for representing human heads and faces. Although the concept of drawing a horizontal or vertical plane section of an object dates to antiquity, no one had proposed before orthogonal drawings of the head Piero della Francesca did, mapping the human features through a web of codes that would allow any artist to accurately depict it in any number of orientations.

When Rebecca Allen developed her computer animation for Kraftwerk's music video *Musique Non Stop* (1986), based on graphic renderings of the heads of the four German electronic music pioneers—that were also reproduced on the covers of the eponymous single release and the album *Electric Café*—, she adopted a similar approach (Fig. 1). Rather than starting from scratch, though, she based her study on mannequin heads reproducing the musicians' somatic features, in the attempt of capturing the usually cold attitude of their personas. In photos documenting the work in progress, one sees Allen as she positions each of the heads under a web of hanging chains, dotted at regular intervals, through which she was able to create maps that were then digitally transposed using a scanner and a facial animation software she developed on her own. The process involved a double layer of mediation: a sculptural mannequin first and then its digital transposition in virtual reality, where it was animated performing basic moves and expressions.

Kraftwerk were not new to the idea of replacing themselves with surrogates. To expand and perform the theories of their concept album *The Man-Machine* (1978), they had commissioned four animatronics with their own resemblances. After *Autobahn* (1974), *Radio-Activity* (1975), and *Trans-Europe Express* (1977), with *The Man-Machine* the group brought forward a peculiar commentary on modern technologies and media communication, meanwhile allegorizing the specters of Nazi Germany and its obsession for efficiency and automation (Spampinato 2023, 63–82). Characterized by a deadpan tone and a machinic rhythm, the sound and lyrics found a performative counterpart in the musicians' cold moves and the uniformed attire, both live and in photoshoots. With the animatronics taking their place on stage, they reinforced this agenda, the robots attempting of humanizing machines while highlighting the dehumanizing aspects of modern life. Allen's outcome was to adapt Kraftwerk's universe to the new dynamics of virtual reality and personal computers.



Figure 1. Album cover of *Electric Café* (Kraftwerk, 1986), Elektra Records.
Artwork by Rebecca Allen.

The record cover of *The Man-Machine* shows the four musicians in ascendent line, sporting red shirts and black ties over an abstract graphic configuration reminiscent of Russian suprematist artist El Lissitzky's style, symbolic of the values of modernity. The artwork as much as Allen's work for *Musique Non Stop* echoed an era when avant-garde artists celebrated the man-machine as it artworks of the 1920s to the 1940s by the likes of Italian Futurists such as Ruggero Vasari's performance *L'Angoscia delle Macchine* (1923), with robot-shaped costumes designed di Ivo Pannaggi, and Giannina Censi's *Aerodanze* (1930–31), in which she executed dance moves simulating the dynamics of a flying aircraft. The mechanical nature of these beings was recuperated in the postmodern age by Kraftwerk and Allen, and it is evident in the other two case studies selected, GMM and Max Headroom, not because they shared the same principles, but to highlight the automated conditions of contemporary forms of mediation and codification.

3. Computer Art and the Information Age

Possibilities of codification of reality saw a turn in the 1950s with the introduction of transistors, which led the way to the information age, an era dominated by growing processes of informatization that immediately got the interest of artists too. Exhibitions such as *Cybernetic Serendipity: The Computer and the Arts* (1968) at ICA, London, *The Machine as Seen at the End of the Mechanical Age* (1968) at MoMA, New York, and *Software: Information Technology: Its New Meaning for Art*, (1970) at the Jewish Museum, New York, presented pioneering media artworks such as Leon D. Harmon and Kenneth C. Knowlton's *Mural* (1966), obtained by scanning a photograph of a reclining woman nude and converting it to binary numbers which were assigned typographic symbols based on halftone densities. The image, which was reproduced several times, was long considered an early demonstration of the endless possibilities of manipulation of reality by reducing it to a data set, but it didn't come without sexist bias as is often underlined today.

As part of the renowned interest for early forms of computer art, a new series of exhibitions have been recently organized, including *Electric Dreams: Art and Technology Before the Internet* (2024) at TATE Modern, London, and *Radical Software: Women, Art & Computing 1960-1991* (2024) at Mudam, Luxembourg. Both shows highlighted the role of women in media art history, citing Donna Haraway's cyberfeminist theories of the 1980s. Lynn Hershman Leeson's *X-Ray Woman* (1966), for example, made the same year as Harmon and Knowlton's *Mural*, depicted a woman nude but from a different perspective, visualizing a mechanical organism as a tool for empowerment and emancipation. A feminist perspective also emerged from Rebecca Allen's early works such as *Girls Lift Skirts* (1974), a 13-second computer animation showing a woman seductively lifting her skirt, her revealed legs, suspenders, and underwear being coded by numbers, which according to Tina Rivers Ryan "parodies the fetishizing of women's bodies by male computer artists" (Rivers Ryan 2024, 140).

Giovanotti Mondani Meccanici have recently undergone a process of reconsideration too, albeit limited to Italy so far. Founded by Antonio Glessi and Andrea Zingoni in Florence in the late 1970s, between 1984 and 1987 they created a saga of computer comics whose protagonists were three cyborgs in suit and black sunglasses called Giovanotti Mondani Meccanici (Mundane Mechanical Youths), the alter egos of the artists themselves and an embodiment of postmodern cynicism. The comic strips were created with an Apple II, the computer that predated the Macintosh. Based on scripts written by Zingoni, the figures were traced by Glessi using an optical pen on a cold graphic tablet in an 8-bit expressionist style, on a surface of about 150×250 pixels and a range limited to only six colors. A perfect example of 1980s personal computer art and the idea of the double examined here, GMM's computer comics were published on *Frigidaire* magazine and some circulated as videos in art circles, but first and foremost they existed as files.

4. Learning from Video Art: Mediation and Displacement

Another way to frame these case studies in art-historical terms is to read them in line with early video art practices, namely those single-channel videos and installations that explored the peculiar possibility of simultaneity offered by the introduction of video technology. Frank Gillette and Ira Schneider's installation *Wipe Cycle* (1969), for instance, an allusion to the spread of CCTV cameras, presented a wall of monitors inside a gallery space transmitting delayed images of the visitors filmed by security cameras installed at the entrance. Another relevant artwork was peter campus' *Three Transitions* (1973), a single-channel video showing three interactions of the artist with his own pre-filmed mediation. According to Rosalind Krauss, "The double that appears on the monitor cannot be called a true external object. Rather it is a displacement of the self which has the effect of transforming the performer's subjectivity into another, mirror, object" (Krauss 1976, 55). Both examples reflect indeed the artists' pre-occupations for video's fragmentation of identity.

Giovanotti Mondani Meccanici never used video in such a way. Their video versions of the computer comics were constructed as animated sequences of the strips, with fades between the illustrations, a voice over, and a soundtrack. And even when in the late 1980s they produced more complex video installations, none of them aimed at deconstructing the mechanism of mediation itself as in the cases above. However, in narrative terms, displacement is a crucial issue in their production considering, for instance, some illustrations from the computer comics series, such as the one published on the cover of *Frigidaire* magazine (issue 46, September 1984), in which one of their characters is shown headless, his head being broadcast on a TV screen he's holding. Let's consider also the performative side of the computer comics, consisting in improvised public appearances of three performers dressed like the Giovanotti Mondani Meccanici, who elicited the contraposition between virtual and real selves.

Being a character living in the cyberspace, Max Headroom is nothing different. Originally created by George Stone, Rocky Morton, and Annabel Jankel for the movie *Max Headroom: 20 Minutes into the Future* (1985), it became the character of a TV show for Channel 4 in the UK (1985–87) and later ABC in the US (1987–88). Although being introduced as "the first computer-generated TV presenter," he was not created with a software but through a prosthetic makeup, contact lenses, and a plastic suit that reinforced the mechanical look of a real actor. Wit and self-confident, his personality satirized the arrogance of 1980s TV hosts and the capacity of the media to produce consensus. As far as the story set in a dystopian future goes, Max Headroom was the digital displaced incarnation of journalist Edison Carter, developed by an AI system after he had a motorcycle incident. Carter used to be a trouble-making journalist whose investigations aimed at exposing the unethical conduct of an oligarchy of TV networks that ruled the world.

5. In Light of the History of Animation

Another important element to consider for framing these doubles is how they related and eventually contributed to the evolution of animation, which is punctuated by innovative approaches at the crossroads of arts and tech. Based on a similar take to codifying the human body as that introduced by Piero della Francesca, Ed Catmull and Frank Parke's video *A Computer Animated Hand* (1972), created as a graduate course project, showed an animated hand rotating in multiple directions, obtained by dividing a plastic replica of Catmull's left hand in 350 triangles and polygons, then scanned and animated. Not content with simply animating drawings as in *Girl Lifts Skirt*, Rebecca Allen developed a similar process but extended it to a whole body as in the case of *Swimmer* (1981), a 6-second video of a woman swimming produced at the Computer Graphics Laboratory at New York Institute of Technology, which was then directed by Catmull, who will prove to be a crucial figure in the history of animation also as a co-founder of Pixar in 1986.

In an interview for the recent *Radical Software* exhibition catalogue, Allen has reminded: "At that time, if you wanted software, someone had to invent the algorithms and write the programs themselves because there wasn't any commercial software yet. We had to invent and develop the foundational ideas for modelling, rendering and animation software as well as the interfaces needed to use it. However, it felt good to invent something that was both artistically and technically new [...]. Also at that time, the art world was viscerally opposed to artists' use of computers. I think I have made my whole career in an area of art that no one accepted as such" (Allen 2024, 155). Unlike other pioneers who gravitated around the Computer Graphics Laboratory such as Catmull, John Warnock and Alvy Ray Smith, who all founded soon-to-become major companies such as Adobe Systems and Pixar, Allen's approach has always remained a purely artistic one. Notwithstanding, her experiments with 3D human motion soon brought her to more advanced projects as with *Catherine Wheel* (1982), a computer-generated dancer playing the role of St. Catherine in the namesake dance performance choreographed by Twyla Tharp, with a soundtrack by David Byrne.

During the 1980s, advancements with 3D human motion found their way more in media industry than in the arts, starting with *Tron* (1982), a movie directed by Steven Lisberger and produced by Walt Disney that is considered the first commercial product to feature a prolonged use of computer-generated 3D animations, around 15 minutes in total. The narrative revolved around the adventure of a videogame maker who entered the digital world he was designing, a gridded environment regulated by a security system named Tron. The movie's displacement of real characters into the virtual scenario is based on the speculative potential of artificial doubles to perform in ways a real human being

couldn't afford. The same is true for one of the most popular music videos of the decade, a-ha's *Take on Me* (1985), directed by Steve Barron, in which a couple's love relationship and communication is complicated by a continuous shift between a physical and a hand-drawn world, an allegory of the alienating impact of media fantasies.

Both Max Headroom and Kraftwerk under Allen's treatment fit in this lineage as it is particularly evident if one compares the original performers and their doubles on screen, their resemblance to the original being of utmost importance. In the case of Max Headroom the choice of simulating the digital effect was deliberate as argued by one of its creators, Rocky Morton, in an interview: "[It's] the face. The human face. We'll just use the actor's face and just make it appear as if it was computer-generated by putting prosthetic make-up on it, and then shooting it in a certain way; we could make it look like it's computer-generated" (Schmidt-Rees 2020). Various photos show the process of transformation of the actor Matt Frewer during different phases of heavy make-up until he was transformed in Max Headroom. And for Allen too, even though her Kraftwerk doubles were computer-generated, the correspondence with their original features was crucial, as it emerges by simply comparing photos of them with their animated mannequins.

6. Worldbuilding as a Metalinguistic Take on Gaming and Gamification

Part of the appeal of the three case studies discussed here is based on the aesthetic language of 8-bit videogames of the time. Videogames, the most productive among today's media industries, had a massive role in popularizing computer culture. In the 1970s, before personal computers such as the Apple II and the Macintosh even existed, consoles for playing videogames such as Pong, Atari, and Intellivision entered the domestic space, alphabetizing users to a new visual language and legitimizing the possibility of building worlds by pixels, or else sequences of basic squared units of programmable color on a TV screen or computer display. More than the actual gaming dynamic and the characters, the most innovative aspect of videogames is in fact related to the concept of worldbuilding, the process of constructing a virtual and fictional world in geographic terms, but also its history and culture, recuperating old styles for image-making through small units, such as mosaics or the textile techniques of crochet and embroidery.

Giovanotti Mondani Meccanici opted for comics and video because they felt these mediums were more suitable to their stories of cynic violence and alienated dystopia. However, their computer-generated pictures clearly shared a lot with videogames, in terms of storytelling and subcultural tropes, but mostly

for their aesthetics. Part of the renowned interest for GMM today is in fact due to their 8-bit nature, which is an aspect I highlighted when I had the chance to edit a publication that collected their computer comics (Spampinato 2021). On one side, we proposed a digital remastering of the comics, re-enacting with more advanced tools the original transcodification process, which consisted in taking photos of the individual illustrations on a TV screen and then printing them out for either publication on *Frigidaire* magazine or a video montage. On the other side, being files, we enlarged some of them on double-page spreads and one time on a huge billboard in Milan,¹ highlighting how striking an image composed by a bunch of pixels could still be.

A quintessential postmodern character, Max Headroom transmigrated between media and bodies. Afterall, its audience was used to consuming contents in various formats, from TV to music videos to videogames, and on various supports, from VHS to floppy disks. Making a licensed Max Headroom videogame was a logical choice and a commercial venture as well. Released by Quicksilva in 1986 for Amstrad CPC, Commodore 64 and ZX Spectrum, it was based on the same narrative of a future society dominated by the TV industry, with Max Headroom being held hostage by a global TV network on the 210th floor of the company's headquarters. The player controls the character of journalist Edison Carter, who moves throughout the skyscraper thanks to two elevators, the corridors being patrolled by anthropomorphic robots. The 8-bit graphic was very basic and the game didn't meet the players' expectations, but it certainly reinforced Max Headroom's virtual persona and presented it for the first time as a truly computer-generated character.

GMM and Max Headroom are representative for understanding how dynamics of worldbuilding and storytelling born within literature, the visual arts and cinema consolidated through videogames since the 1970s. What they share, unlike most videogames, is a metalinguistic take at worldbuilding and storytelling, entertaining yet developing a critical reflection on media. In so doing, they fit in a trajectory of hybrid media objects that similarly analyze the impact of gaming and gamification. Take for instance the movie *Nirvana* (1997) directed by Gabriele Salvatores, in which a videogame character, an actor in the flesh, not computer-generated, becomes self-aware of his fictional existence. Or consider American artist Ian Cheng's AI-driven video animations, or else videogames that play themselves, exemplary of his fascinating theory on worldbuilding or worlding as a practice for creating autonomous universes, as when he argues: "A World is a future you can believe in: One that promises to survive its creator, and continue generating drama" (Cheng 2018, 17).

1 A billboard reproducing an image of Giovanotti Mondani Meccanici's computer comics was installed at Spazio Maiocchi in Milan for the 2021 edition of Sprint artists' book fair, as part of a series of initiatives developed on the occasion of the book edited by Francesco Spampinato and published by NERO.

7. The Postmodern Nature of the Computer-Generated Double

The virtual doubles produced by Allen, GMM and the team behind Max Headroom are typical postmodernist artworks, because they reveal the mechanisms of media and their impact on human psychology and behavior in the postmodern age. Other postmodernist artists adopting and addressing media such as Laurie Anderson or Gretchen Bender did that from a similar angle, but the peculiar aspect of the three cases selected here is their hybrid nature and how they were able to circulate in the very media scenario they ultimately deconstructed. They are postmodernist also because they incarnate various postmodern features as they have been theorized in the 1980s by thinkers like Fredric Jameson, Jean Baudrillard, and Donna Haraway. A computer-generated double is indeed based on an artificial reconfiguration of natural elements, in line with Baudrillard's theories of simulacrum and Jameson's idea of *pas-tiche*, while their artificiality can be interpreted as a tool for empowerment as in Haraway's cyberfeminist theory, notably in Allen's case.

These media artworks are postmodernist also because they reveal the subliminal logics of consumerism and mass media's power to invent models with which viewers passively identify, meanwhile acknowledging the appeal of emerging prosumer technologies. Similar issues were considered within the realm of mass media as well, an interesting case being the movie *Looker* (1981) directed by Michael Crichton, an early critique of cosmetic surgery, also known for showing the first computer-generated 3D model of a human being, way more advanced than Allen's *Swimmer* of the same year. A scene shows the process of creation of a virtual woman, "perfect" according to the canons of beauty industry, the fictional codified body being a metaphor of the shift from passive TV voyeurship to viewers' activation, as when Baudrillard's argued: "In place of a reflexive transcendence of mirror and scene, there is a non-reflecting surface, an immanent surface where operations unfold—the smooth operational surface of communication" (Baudrillard 1983, 126–27).

In comparison with *Looker*, although less sophisticated, Allen's music video for Will Powers' synth-pop song *Adventures in Success* (1983) appeared way more critical, not only of consumerism and cosmetic surgery but also of media's objectification of women, which is an aspect the movie failed to properly address, in line with the work of likeminded postmodernist feminist artists like Dara Birnbaum, Barbara Kruger, and Cindy Sherman. As Will Powers—the nom de plume of celebrity photographer Lynn Goldsmith—proposed a parody of self-help motivational techniques and related identity troubles in the postmodern times, Allen produced a video animation filled with symbols of success and a chorus of rotating masks to which the singer's identity is delegated, each mask revealing her virtual face both on the outside and the inside. As

this award-winning music video entered in heavy rotation on MTV and VH1, its critical stance was even reinforced in contrast with the misogynist vocabulary of various hard rock music videos of the same era.

Similarly, Giovanotti Mondani Meccanici and Max Headroom embodied the postmodernist idea that human beings could now be cyborgs—hybrid creatures combining biological and technological elements—or even replaced by entirely artificial beings. In one of GMM's comics, *GIOVANOTTI MONDANI MECCANICI DIVENTANO BUONI* (1985), one of the characters is broken down to pieces revealing its artificial nature, as is traditionally the case with Max Headroom (Fig. 2). GMM's production is quintessentially postmodernist also considering the group's interdisciplinary approach, at the crossroads of various forms of artistic expression and communication, their ability to prefigure future possibilities of media convergence, and their citationist take on history. Some of their narratives, indeed, echo Jameson's idea of pastiche, or else the imitation of previous styles and narratives, as when they encounter historic figures like Julius Caesar or literary characters like the Count Dracula, both of whom end up being murdered by GMM under hilarious circumstances.



Figure 2. Strip from the computer comics *GIOVANOTTI MONDANI MECCANICI DIVENTANO BUONI* (Giovanotti Mondani Meccanici, 1985), *Frigidaire* 60/61. Courtesy the artist.

8. Aesthetics and Narratives of Cyberpunk

The three case studies selected here could be interpreted also through the lens of cyberpunk's aesthetics and narratives. A subgenre of science fiction emerged in the late 1970s, cyberpunk novels, movies, comics, and videogames are set in a dystopian future characterized by the contrast of low-life and high-tech, in societies of control ruled by totalitarian regimes that exert their power through mass media and advanced forms of technological surveillance. The punk element is usually embodied by either righteous rebels or street gangs, who move between dangerous metropolises, no man's lands, and virtual worlds, or else the cyberspace, a concept introduced by William Gibson in his foundational cyberpunk story *Burning Chrome* (1981) and developed in *Neuromancer* (1984): "a consensual hallucination experienced daily by billions of legitimate operators, in every nation [...]. A graphical representation of data abstracted from the banks of every computer in the human system" (Gibson 1984, 49).

As cyberpunk entered the public unconscious through cinema, an early case being the movie *Blade Runner* (1982) directed by Ridley Scott, it is important to highlight how the artists discussed contributed to this cinematographic genre, from *Max Headroom: Twenty Minutes into the Future* (1985), the movie that launched this fascinating character, to GMM's prophetic visual language as when in *GIOVANOTTI MONDANI MECCANICI CONTRO DRACULA* (1984) the three cyborgs' heads stand out against a digital rain of green codes, a mesmerizing graphic abstraction that will be popularized by *The Matrix* (1999). For better understanding their meaning, it's useful to quote an essay published by Franco "Bifo" Berardi in 1992: "In the cyber sphere the first person becomes a projection of worlds [...]. Cyberpunk sees simulation as a prosthesis of the bioconscious organism [...]. We witness here the creation of a neoreal. The neoreal is the space of a shared hallucination [...]. Cyberpunk begins to imagine cyberspace as a prosthesis of the body" ("Bifo" Berardi 1992, 11–13).

Directed by Rocky Morton and Annabel Jankel and produced by Crysalis Visual Programming for Channel 4, the 57-minute movie *Max Headroom: 20 Minutes into the Future* portrays a near-future in which corrupt corporations dominate much of the world and manipulate the public to increase their ratings and wealth. While the righteous hero, journalist Edison Carter, recovers from a motorcycle incident, his AI clone Max Headroom continues the fight for justice and transparency delivering stinging commentaries on Network 23 and the TV regime the network has established, through a TV show aired by pirate TV station Big Time. The movie and the following Max Headroom saga confirm Gibson's and Berardi's considerations on the cyberspace as a virtual world made of abstract data taking the shape of luminescent parallel lines and patterns, an extension of the journalist's double, a hallucination shared by an audience that feels empowered by the possibilities of overturning the social order through the world's unregulated extension.

The idea of cyberspace, as it emerges both from the Gibson and Berardi as well as from the cases analyzed foresighted the birth of the World Wide Web. While the Internet existed since the 1960s, it was accessible only to a few people, mostly working in the military and scientific sectors, until British computer scientist Tim Berners-Lee perfected the World Wide Web at CERN in Geneva around 1989–90. Thus, the idea of the cyberspace saw a turn as a virtual world that was finally accessible to anyone. This is reflected in new cyberpunk narratives as in Neil Stephenson’s novel *Snow Crash* (1992), which has the merit of introducing the metaverse, a concept that will be adopted during the Covid-19 pandemic by Facebook founder Mark Zuckerberg, at the dawn of today’s new era characterized by the faith in virtuality and AI. In Stephenson’s words: “The people are pieces of software called avatars. They are the audiovisual bodies that people use to communicate with each other in the Metaverse” (Stephenson 1992, 35–36).

9. Hacking and the End of the Television Era

Allen’s experimental doubles and the GMM and Max Headroom characters certainly anticipated the advent of the World Wide Web and the ideas of metaverse and avatar that are consolidating in today’s media scenario, mostly by investigating potential forms of telepresence, or else adopting animation technologies to bring human beings, through their animated surrogates, in places they were not physically in, redefining reality as an interactive experience beyond the physical world. However, being born in the 1980s, most precisely around 1984, they also reflected the media dynamics of their own time, a time in which the dominant mass medium was neither the computer nor the Internet, but television as Orwell had anticipated thirty-five years before. Along with Ridley Scott’s ad for the Apple Macintosh, back then references to Orwell’s 1984 dystopia of a society ruled by TV also emerged from popular movies such as David Cronenberg’s *Videodrome* (1983) and John Carpenter’s *They Live* (1988). Both addressed TV’s subliminal power to indoctrinate viewers through allusions to emerging prosumer technologies turning viewers into users, or else prosumers that were able to take control over technology, namely hacking television in the name of a free and more just society.

Visual and conceptual references to media and hacking are scattered throughout GMM’s whole computer comics cycle. In *GIOVANOTTI MONDANI MECCANICI E IL SERGENTE DI FERRO* (1984) they virtually encounter society’s ruthless leader, the Iron Sergeant, a Big-Brother-inspired character at the head of a military dictatorship, who keeps the population under control by delivering daily speeches and propaganda from the state’s TV station. As they watch their own profiles appearing on TV as wanted criminals, described by the Sergeant himself as a particularly dangerous gang for their ability to infiltrate

the cyberspace and even dreams, they firmly point the remote control to the screen making the Sergeant chocking to death. The humoristic, analog act of killing the oligarch in such a way could be considered a metaphor of hacking itself, as the artists will later argue: “[We are] hackers of the imagination, we sneak into systems bypassing their protections, leaving a sign of our passage. We blend in, but we do not integrate” (Bolelli and “Bifo” Berardi 1988, 121).

Fantasies of hacking TV through emerging prosumer technologies are at the base of Max Headroom’s whole story: a journalist’s virtual double taking life in the cyberspace thanks to an AI system, broadcasting from a pirate TV station and sabotaging mainstream TV through invectives and witty comments, this virtual character impossible to be captured or annihilated. Interestingly enough, Max Headroom’s appeal as a hacker inspired real hackers, who on November 22, 1987, hijacked the signals of WGN-TV and WTTW in Chicago, interrupting the programming two times, for 25 and 90 seconds, during which unknown individual wearing Max Headroom masks appeared on screen. On a corrugated metal background that simulated the digital environment of the original show, the hijackers delivered distorted messages such as “Catch the wave,” and performed schizophrenic moves and actions including a woman spanking a masked man with a flyswatter. A sensationalistic example of broadcast signal intrusion, it seems Max finally got real (Fig. 3).



Figure 3. Unidentified person dressed to resemble the character of Max Headroom in a pirate broadcast, WGN-TV and WTTW, Chicago, November 22, 1987.

Allen never addressed television per se but being developed for a music video, Kraftwerk's virtual clones clearly reflected their media condition, as surrogates suitable for entering both the "hyperreal" world of TV and the "neoreal" universe of the cyberspace. Cold, alienated, and machinic, their association with Orwell's dystopia was later highlighted by video art pioneer Nam June Paik who selected this video among others to be broadcast through his installation *Fin De Siecle II* (1989), a wall made of almost 200 monitors of three different sizes, synchronized by groups. Paik, who had anticipated forms of TV hacking in the information age, notably with *Participation TV* (1963) that allowed visitors to manipulate a TV broadcast by speaking sounds into a microphone, conceived this monumental installation to reflect how TV saturated viewers, influencing their behavior and their perception of reality: what could be better than a group of digital mannequins reciting at unison onomatopoeic words as a metaphor of a lobotomized TV audience?

10. Technopop or the Birth of Electronic Dance Music

Technopop was born in the 1980s as a subgenre of new wave music, often used as a synonym of synthpop considering the predominance of synthesizers, drum machines, and sequencers. However, its machinic rhythm and the reduction of vocals made it quite distinct from synthpop and more like a predecessor of techno music. Although the term "technopop" is adopted here in a wider perspective, encompassing the visual and the performative sides of the three case studies, their peculiarity also consists in a strict relationship with the technopop music genre, starting with Kraftwerk. Developed out of 1970s krautrock, a German version of progressive rock, over time Kraftwerk perfected a peculiar style of electronic music with increasing danceable rhythms, first in *Trans-Europe Express* (1977) then *Man-Machine* (1978) then *Computer World* (1981). With *Electric Café* (1986), their ninth studio album, their sound became definitely technopop as it is confirmed by the fact that the album's title should have been *Technopop*.

Allen's Cubist-like multifaceted virtual heads of the four group's members appear on the album's cover in bluish tones over a black background, while their stripped-down reticular version is used in white for the cover of the single release of "Musique Non-Stop." The first side of the album is a long suite of three tracks: "Boing Boom Tschak," "Techno Pop," and "Musique Non-Stop," each connected using the track titles and other phrases in a spoken manner over a few bars of bass melody and regular beats within the 100–130 BPM range. Along with tracks from previous albums such as "The Robots" and "Numbers," the tracklist of *Electric Café* was particularly inspirational for the birth of techno music in Detroit, and Kraftwerk's proto-avatars became the blueprint for countless machinic beings, such as those designed by Abdul Qadim Haqq for Model

500's album *Classics* (1993), which allegorized the condition of discrimination of African-American people in a city that used to be the cradle of American industry, now at the verge of economic and social collapse.

Technopop was an earliest incarnation of today's electronic dance music or EDM, an umbrella term encompassing various electronic music styles characterized by danceable rhythms: Italo disco, techno, house, drum and bass, dub-step, and trance, among others. The fact that a member of GMM, Maurizio Dami a.k.a. Alexander Robotnick, was also an EDM pioneer confirms the group's connection and contribution to the evolution of the genre. Renowned for "Problèmes d'amour" (1983), a hybrid Italo-disco track that is considered today a classic EDM hit, Robotnick developed the soundtracks for the group's videos and installations. The musician, who combined traditional technopop gear such as the Roland TR-808 with music software available for the Apple II, the same personal computer GMM used for their computer comics, was also behind GMM's 1985 eponymous album and the single release "Don't Ask Me Why." This was accompanied by a music video directed by GMM in collaboration with media art collective Studio Azzurro, based on the visual contraposition of the three pixelated characters with the three original performers.

Max Headroom's connection to EDM is related to the collaboration with British synth-rock group Art of Noise on the track "Paranoimia" (1986), a portmanteau of "paranoia" and "insomnia," echoing aspects of the postmodern condition with hints to cyberpunk tropes. The single release features a spoken monologue by Max Headroom, one for the 7-inches and one for the 12-inches version. While in the former the virtual journalist confesses being scared and unable to sleep, suggesting that digital characters follow biorhythms like those of human beings, in the latter he plays the master of ceremonies, talking about the music and making fun of the band members. Slow-paced and more experimental than a typical technopop track in the vein of Kraftwerk, the first version was the one used for the official music video, which shows a TV-set on a wheelchair broadcasting Max Headroom, his stuttering glitches turned into a metalinguistic dance performance, symbolizing that uncanny awake-asleep phase in which fantasy is easily mistaken for reality.

11. Coolness/Coldness: The Media Appeal of Doppelgangers

Part of the appeal of these digital beings was due to their coolness, being impassible while the idea of reality, or else the "grand narratives of modernity" to put it in Jean-François Lyotard terms, started collapsing. Unfriendly and cynical, their coolness was less that of post-War hipsters such as jazz musicians and beat writers, than resonating with the iciness of the coeval Cold War, that

state of conflict between the world's two mega-powers, US and Soviet Union, characterized by atomic threats, espionage, competitiveness, and propaganda. Being virtual doubles or doppelgangers, they echoed countless literary and cinematographic Cold War narratives featuring spies, double agents, and other characters hiding their real identities, starting with their formal attire: short haircuts, black suits with slim ties, and large Ray-Ban Wayfarer sunglasses, the favorite shades of 1980s hipsters. GMM admitted their inspiration for such an outfit came from the Ska music subculture but clearly ended up inspiring the look of Quentin Tarantino's ruthless *Reservoir Dogs* (1992).

These cold-blooded characters also represented the dark side of Wall Street brokers, anticipating fictitious white collars such as the unscrupulous Gordon Gekko in Oliver Stone's movie *Wall Street* (1987) and the narcissistic-cum-psycho-killer investment banker Patrick Bateman in Bret Easton Ellis' novel *American Psycho* (1991). While critiquing the world of finance and neo-liberalism, they contributed to the popularization of these anti-heroes. Max Headroom's attractiveness brought it to grace the covers of popular magazines, from *Newsweek* to *Mad*, and being interviewed by David Letterman in his eponymous TV talk show. However, its success brought Max Headroom to sell-out, becoming a brand for selling VHS, publications and gadgets, and turning from an anti-corporation parody of a commercial TV presenter into a global spokesperson for Coca Cola, featured in various commercials and delivering messages such as "Catch the Wave," the phrase that will be recited by the hackers of the 1987 TV hijack to highlight the betrayal.

As consumerism perpetrated in daily life through pop and media culture, the fact that these surrogates circulated on TV shouldn't be considered as a weakness. On the contrary, finding their way in the media industry allowed the artists to infiltrate the very mechanism they aimed at critiquing, while respecting its basic need to entertain the audience. After the computer comics, in 1985 GMM developed *Le avventure di Marionetti*, an 11-episodes series that was aired on Italian first state TV channel Rai Uno as part of the program *Non Necessariamente* (1986–87). Made by digitalizing and post-producing photographs of performers, the series follow the adventures of a clumsy character named Marionetti, a postmodern parody of Italian Futurist leader Filippo Tommaso Marinetti and of all the values he incarnated. Far from the merciless cyborg of the computer comics, this comical character pokes fun at TV itself, the hedonistic lifestyle of the postmodern age, and the vacuity of media spectacle, skeptical of the role of avant-gardes after losing their goals.

12. Foreseeing the Future, or Today's Seamless Condition

GMM and Rebecca Allen flirted with commercial culture but never compromised with it to the degree the Max Headroom's team did. Rather, they stuck to the art circles, developing more advanced projects for exhibitions. GMM kept experimenting with the idea of the virtual double by exploring the possibilities for interaction offered by new computer systems. In the installation *Buddha Vision* (1991), users could interact, through their live simulacra on a screen, with a digital shower of lotus flowers, activating sounds composed by Alexander Robotnick on a pentatonic scale every time they touched one. The playful activity, which reminded typical videogaming dynamics, was in fact introducing the very concept of gamification, ahead of its time, or else how media technologies were providing more simulated experiences, the result of live performing having direct impact in the virtual space. Still far from today's forms of immersion such as those allowed by VR systems, this interactive installation allowed any user to instantly deal with a digital surrogate.

Still active today, Kraftwerk only had very few releases since the 1990s, but they kept working on their repertoire, with new remixes, new design for online outlets, new packaging for the physical releases, and continuous remediations. The visual material developed for their 1970s and 1980s productions, including Allen's digital music video for "Musique Non Stop," was resuscitated in 3D concerts, with Kraftwerk still touring despite only one of the original founding members, Ralf Hütter, has remained. Through the retrofuturistic technique of anaglyph 3D—a slap in the face at today's advanced technologies but not dissimilar in the effects—, Kraftwerk's audience sees a large-scale 3D version of Allen's video featuring their digital doppelgangers, who play in a minimal, abstract, virtual world behind the stage, a world that is in fact out of time and space, a world they never left despite the other founder, Florian Schneider, has died and other two historic members left the group.

A peculiar characteristic emerging from the virtual doubles discussed here, notably Kraftwerk's digital surrogates, also at the base of today's avatars and digital twins, is their immortal nature. British artist Ed Atkins, for instance, a pivotal figure in the post-Internet generation, is known for the video works of the 2010s featuring his own avatars, which he started developing to meditate on death and the sense of "losslessness" embedded in today's digital life, or else the nullification of the sense of mortality and loss that characterizes human life. (Atkins 2018, 80–97). British music producer Sophie addressed similar issues in *Faceshopping* (2018), a song about the fragmentation of identity online and the possibilities of creating new identities through digital technologies, resonating with the artist's own path as a trans woman. The accompanying music video features an emotionless avatar of the artist, her face being transformed in

various ways, objectified and lifeless, an eerie premonition of Sophie's premature death only a few years later.

The avatar and the metaverse, two phenomena that consolidated in post-pandemic times, or else the early 2020s, are at the base of a new psychological, social and cultural condition that we can define "seamless," a perceptual condition of the real-virtual continuum that I have identified elsewhere as being characterized by the following properties: timelessness, simultaneity, the effect of dislocation, the interactive dimension, the illusion of continuity, and the nullification of the sense of mortality and loss in a disturbing transhumanist perspective (Spampinato 2025). AI software, which spread since the launch of ChatGPT in 2022, have even accelerated this condition with deepfakes, more illusionistic replicas or objects and beings. Crafted with rough technologies, the interest for the technopop virtual doubles conducted here doesn't lie merely on their media-archeological nature, but on the fact that their naïveté helps better understanding the origins of present dynamics of visuality and virtuality, teaching how to distinguish the real from its digital twin.

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