DIGITAL VIDEO EFFECT. THE FOUNDATION OF THE VISUAL IMAGINARY IN ITALIAN TELEVISION IN THE 1980s

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PAINTBOX

The article presents some reflections on the status of Italian television in the 1980s, a key period related to the transition from analog to digital images. A period marked by events, broadcasts, personalities and technologies that were at the beginning of the diffusion of computers that took place in Italy also thanks to the contribution of public and private television.

The way and the timing of this transition have been analyzed considering some fundamental steps that the progress of information technology made in the 1980s also in television studios.

While it is true that the introduction of graphic workstations radically expanded the graphic possibilities of the directors of TV, it is also true that 'traditional' visual art has made an important contribution to the esthetics and content of Italian television since the first television broadcasts. In this context, there are not many studies that have investigated the function of television in highlighting the role of information technologies in the construction of a new visual imaginary.

To begin this analysis, we have analyzed, on the one hand, the programs, including radio programs, in which the electronic/digital language has interacted with that of television, and, on the other hand, some incursions on television programming by personalities already known for having explored experimental forms of hybridization between TV, art and computer.

PITTRONICA

Pittronica is the title of a television program created by Massimo Mida and Sandro di Paola for RAI's Center for Research and Experimental Programs in Turin.

It was broadcast in prime time on RAI3 in February 1985. The aim was to show the combinatorial graphic capabilities of a graphic workstation assembled by the RAI Technical Laboratory, equipped with an input tablet and an electronic pen that could be used to draw colored graphic elements on the screen.

The experiment was not particularly successful, since the two artists brought in to test the workstation, the sculptor Emilio Greco and the painter Bruno Caruso, did not fully exploit its potential, reducing it to an instrument capable of faithfully replicating their authorial trait, highlighting only some procedural peculiarities. The program, which focused on their artistic careers, eventually trivialized the use of the computer. In retrospect, therefore, the ways and times that marked the transition from analog to digital television should be reviewed in light of the fundamental steps that the progress of computer technology made in the 1980s.

If information technology already promised to revolutionize all operational practices, the full digital conversion of traditional media would have required a long and arduous process of transitioning the entire television sector to new technological standards. While it is clear that the 'traditional' visual arts have made a strong contribution to the esthetics and content of Italian television since the first television broadcasts and are at the origin of a "technological visuality" (Mari, 2016), there are not many studies that have explored the function of TV to highlight the role of computer technologies in the construction of a new visual imaginary. The article is therefore proposed as a first reflection on the events, shows, television personalities and technologies that are the origin of the diffusion of computing in the Italian TV. Among the proposed case studies, we will analyze

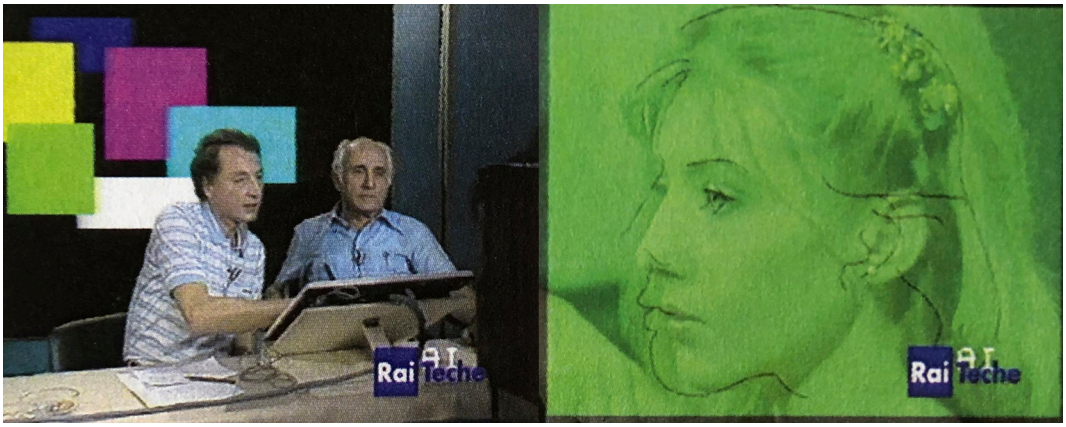

Fig. 1 Frames from the television program *Pittronica* (1985). On the left, Emilio Greco and Bruno Caruso at work with the Tesak workstation. On the right, the rotoscope of a woman's face.

some significant incursions into television programming by personalities already known for having explored experimental forms of hybridization between TV, art and computers, as well as programs and broadcasts, also on radio, in which the electronic/digital language has interacted with that of television.

THE BEGINNING OF DVE

On December 26, 1982, *Time* magazine named the computer Machine of the Year. The Machine of the Year (as defined by the magazine) is unique in the history of the weekly magazine. *Time*'s choice is due to the great success that the PC had during that time, making it an affordable item for many.

The early 80s were an epochal moment for the industry. Companies such as Microsoft, Apple and IBM were founded during this time and gained a competitive advantage that other companies in the industry never had before. Although the personal computer had just come on the market, that is, a home computer that was now available to a large part of the population, it was considered a typewriter that could speed up and repeat certain operations indefinitely, *Time* magazine

decided to dedicate its cover to it because it saw in this device the medium that would accompany humanity in the future. The model on the cover was representative of the time: the IBM 5150, a computer that sold more than 200,000 units in the first twelve months after its launch in September 1981 and that prompted competitors to adapt to the standard and develop IBM compatible personal computers.

In the same period, at least two technological innovations will profoundly change television broadcasting in Italy and in the world. First, the introduction of color transmissions and, second, the simultaneous development of electronic instruments, the precursors of today's graphic workstations, which, through the introduction of Digital Video Effect (DVE) devices, opened the way to the possibilities of so-called videography (Lagonigro, 2018).

Before the introduction of hardware and software systems for the digital manipulation of television images, the technical device that allowed modest possibilities of graphic deformation was the Squeezoom. In Italy, one of the pioneers of this device was Valerio Lazarov. The Romanian director, naturalized as a Spaniard, after a first television experience at RAI, was able to establish himself in Italian private television with Fininvest by Silvio Berlusconi. He was, in fact, the first in Italy to make extensive use of electronic techniques to manipulate television images. Squeezoom, installed in the editing room, was an image processor manufactured by the American company Vital that made it possible to alter a live television image by geometric transformation or multiplication. When Squeezoom was combined with another of the most widely used effects at the time, Chromakey, the result was a kaleidoscope of human figures and psychedelic geometric patterns. The processor, which cost 300 million Italian lire, reached its peak in the hands of Lazarov and shaped the television esthetic of the time, filling television magazines, especially music magazines, with enlargements, split screens, and mirror effects that made it possible, among other things,

to compose entire choreographies with a single dancer who could be infinitely multiplied.

Among the hardware tools that will shape an entire decade is certainly the Paintbox. Launched in 1981, the Quantel Paintbox was a graphic workstation for creating videos and images for television shows. From its first use, the

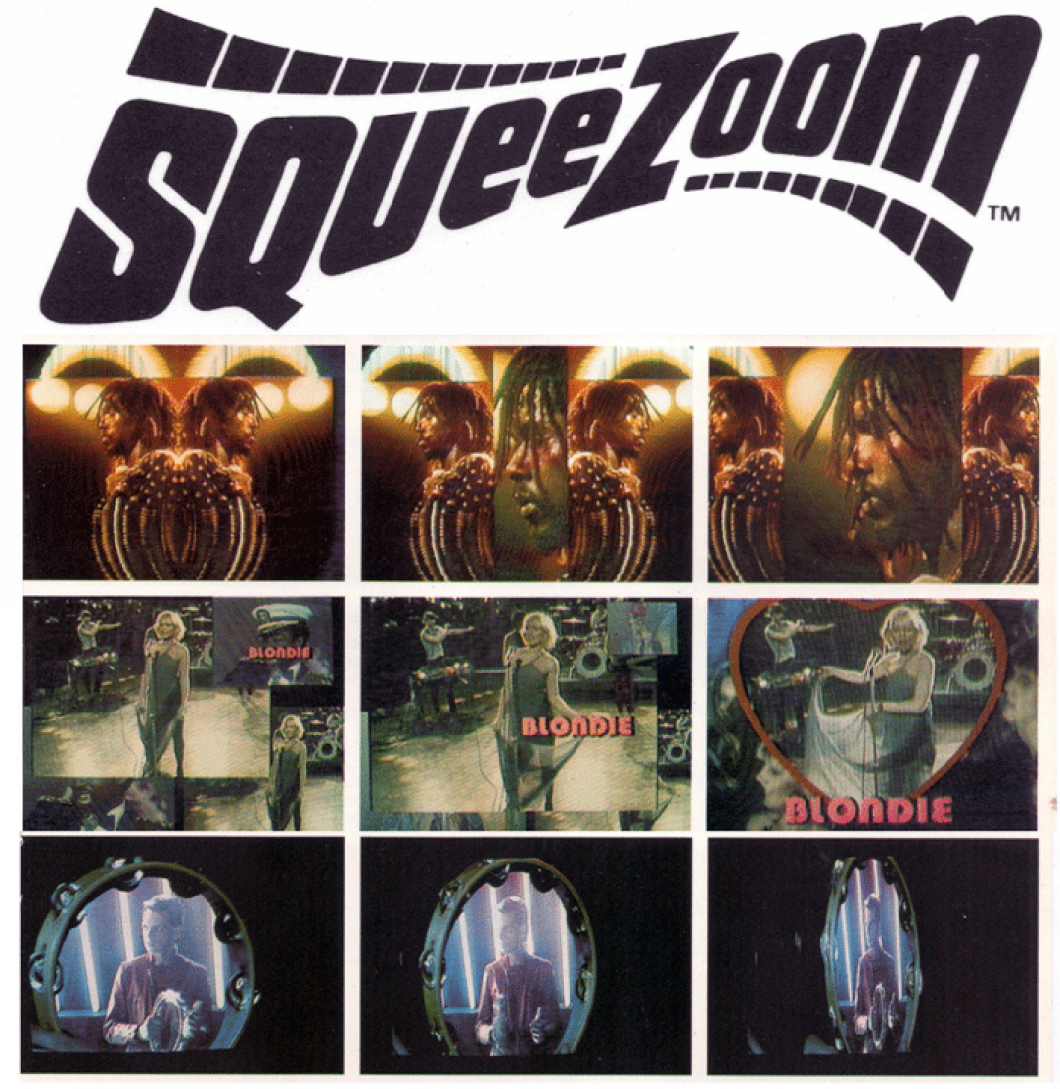

Fig. 2 Vital advertisement illustrating the wonders of the Squeezoom (1980)

Paintbox forever changed the production of TV graphics and, with its effects, shaped the entire TV and video production of the 80s and 90s, especially with regard to the editing of music videos and TV opening titles, introducing, through dedicated hardware, a series of effects and digital filters that allowed both two-dimensional and pseudo three-dimensional manipulations.

The Quantel Paintbox was a broadcast-quality, 24-bit, true-color graphics computer that allowed operators to navigate and click simple menu boxes using the first pressure-sensitive pen and a drawing tablet.

Operators worked directly with an electronic pen on a graphics tablet and checked work progress on the television screen and on a graphical interface with which they could interact directly with the pen.

The Quantum device that came to market after the Paintbox was the Mirage in 1982. It was the first processor capable of manipulating images in 3D space and applying morphing effects based on a 'particle system' to map pixels of one image to pixels of the second image.

The next step came in 1986 with the release of the Harry Model, the world's first non-linear editor that combined the manipulation capabilities of a graphics workstation with the ability to edit images and video directly on a timeline.

As evidence of the importance Paintbox had on the esthetics of television in the early 1980s, here is an excerpt from an interview with Italian graphic designer and artist Mario Sasso, who created the title sequence for the television program Grandi Mostre in 1980, which reveals in part the artist's relationship to multimedia and computer graphics in terms of art communication as well:

> The title sequence for Grandi Mostre was one of those interesting experiences where the artistic quote was flanked by the exploration of the languages of computer graphics. I took a lot of samples, so I made a 20-minute video that was shown at the Venice Biennale "Art and Science". An anecdote: I wanted to leave in the sequence,

> which was actually a video with the whole process of animation of painting, the interface of Paintbox articulated in the progression: the pixel that went to paint, the palette where you drew the color, the menu of colors. When the editors of the program saw this, they were a little perplexed: "This is how you reveal the cards," they said. To me, on the other hand, it seemed like the right choice for an art column: When you interview an artist, you do not cut out his brushes, his paints, his palette.(Bolla & Cardini, 1995, p. 313).

TV critic Omar Calabrese, on the other hand, sees in it an instrument that allows to influence the communicative system of television and to bring it closer to the artistic practices of the *avant-garde*. In fact, he affirms that

Fig. 3 Mario Sasso, frame from opening title Grandi Mostre, RAI (1986).

> the whole television pagination, carried out with the paintbox, is nothing other than a graphic pagination that goes back to Mondrian and transforms the screen from a window to the world, from which the depth of the scene is revealed, into a simple surface, a sheet of paper. The television screen retains a concreteness because you can see the characters, the people, the information and everything else, but at the same time it works on the surface as if it were an avant-garde work. (Bolla & Cardini, 1995, p. 307)

In 1986, when the painter David Hockney was invited by the BBC to participate in a television series entitled Painting with Light, which was intended to demonstrate the possibilities of this innovative graphic system, he pointed out, after eight hours of painting at a stretch, that the Paintbox produced 'honest' images, since the electronic medium in which the artist worked was the same medium through which the viewer experienced his work.

His remarks begin with these words

> That little cross represents the point I'm actually drawing on a just a blank board, and it leaves no marks behind so what you actually seeing is the original. There's no one piece of paper left you're not drawing on a piece of paper, you're drawing actually directly on this TV screen where you're seeing it now, in a way there is no distance between you and the mark being made, actually this is the mark being made on the screen and it doesn't exist in any other form. ("Painting with Lights", BBC2 documentary series)

As mentioned in the introduction, in the early 1980s, the RAI Research Center in Italy, in collaboration with the Italian company TESAK, developed a workstation called EGP 414, which consisted of a computer and a graphics tablet connected to a video recorder, very similar to the Quantel system. The EGP 414 was therefore the system presented in the TV program *Pittronica*, and it was also used for some experiments between analog and digital by 'traditional' artists such as Mario Ceroli or Marco Giacomelli (well-known

book Camerino), but it achieved very different results, for example in some title sequences by Luciano Longo and Mario Convertino (Bordini & Gallo, 2018).

Since the beginnings of Italian public television, opening credits have represented an interesting field of experimentation for the moving image and a particular place of confrontation between graphic design and technological medium (Mari, 2016). There have been rare occasions when entire series of television programs have been dedicated

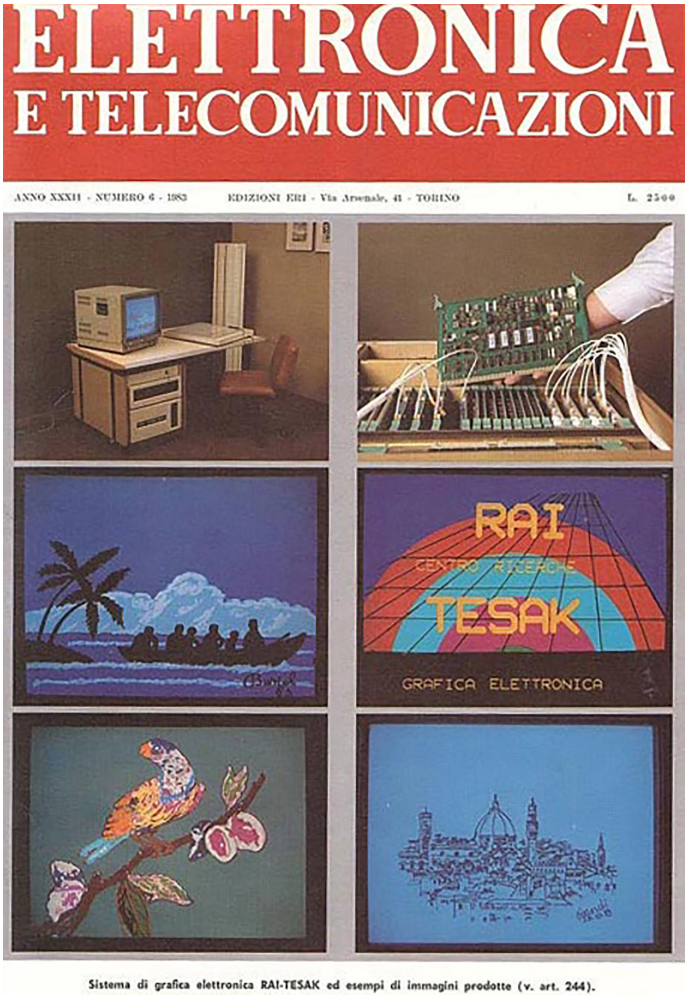

Fig. 4 Cover of the *Elettronica e Telecomunicazioni* magazine, published by RAI, dedicated to the Tesak workstation (1983).

to the promotion of an electronic visual culture capable of proclaiming the amazing possibilities opened up by the computer tools applied to television graphics.

In the context of the Italian TV in the 80s, we remember television programs conceived and broadcast with the intention of popularizing the use of technologies and computer science, among others, besides the already mentioned *Pittronica* (1985): *Radiotext* (1984), *Bit, storie di computer* (1984); *Chip* (1984); *Non necessariamente* (1986); *Immagina* (1987). These programs, although in different ways, pursued the goal of informing the television audience about the computational and graphic potential of personal computers.

In the beginning, however, it was Antonio Grasselli, professor of the newborn computer science course at the University of Pisa, who gave the introductory course in data processing. This was one of the courses of *Telescolastica*, born from an agreement between RAI and the Ministry of Education. *Telescolastica* was a section that included all the school and educational programs broadcast by RAI as part of the general program for culture TV and school integration. *Telescolastica* was transformed a few years later into the *Dipartimento Scuola Educazione*, created by Law No. 103 of April 14, 1975, and then renamed *Videosapere* (from 1995 to 1997), then RAI Educational (from 1997 to 2014) and finally *RAI Cultura*. The *Dipartimento Scuola Educazione*, as well as its successors, was a structure of RAI that dealt with cultural and educational activities, carrying out cultural and educational programs. An excerpt from the 1971 RAI Board of Directors report states

> The agreement signed in June between the Ministry of Education and RAI laid the foundation for a new approach aimed at offering new didactic models beyond the traditional teaching formula and the rigid division of subjects. Last year, the *Sapere* pillar, the heart of the adult education programs, underscored an orientation aimed at giving each program a precise qualification

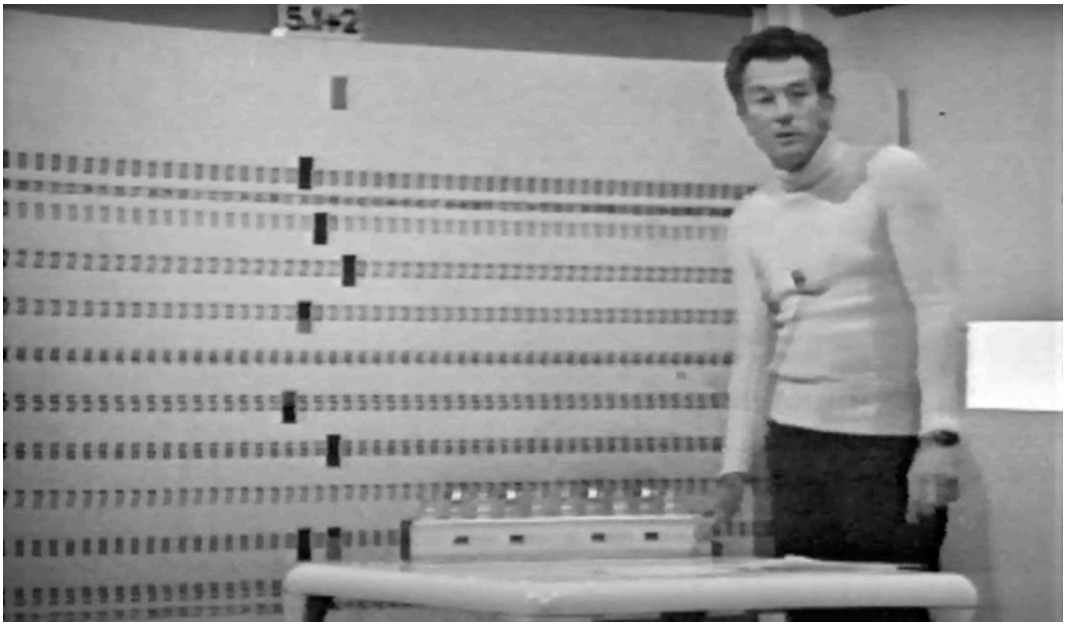

Fig. 5 Frame from the television didactic program *L'Informatica* with prof. Grasselli (1971).

> that balances the requirements of cultural dissemination and critical engagement. The program is divided into three areas: popular topics (to mention just a few titles: *L'Informatica and Storia del nazionalismo europeo*), centers of cultural interest (*La Bibbia oggi, Il minore e la legge, La società post-industriale*), monographs (on topics of current or potential importance to the public). (RAI, 1971)

***Radiotext* (1984)**

Just like the computer courses that Prof. Grasselli taught on TV with the precise intention of teaching, but without any ambition to intervene directly in the visual imagination of the audience, *Radiotext* was born with the specific intention of spreading, or rather transmitting, software over the radio throughout Italy. Eight episodes were broadcast on RAI RadioTre between May and June 1984.

Radiotext thus consisted of two parts: a traditional part, in which radio speakers commented on the main theme of the episode, also with the help of external interviews,

and an innovative part, in which impulses were broadcast. These impulses encoded the different programs one after the other for different types of computers, so that the user could record the programs he was interested in on audio cassette and then load them on the home computer.

The computers to be used were the most popular of the time in Italy: the Sinclair ZX Spectrum, the Olivetti M-10 and the Commodore 64. The offer was primarily aimed at students, teachers and professionals, who had the possibility to use free software for the creation of databases, the creation of musical scores or the definition of tourist routes. It is worth noting the program of the second episode, entitled: Graphic Computers and Bit Comics, in which, in addition to interviews with Bob Noorda, Giorgio Soavi and Milton Glazer, 10 minutes of analog signals were broadcast, dedicated to the creation of a database for collecting magazines, characters and authors of comics, as well as demo software for drawing with the computer (Pachetti, 2014).

***Chip* (1984)**

In an attempt to bring the world of computer science closer to the general public, in 1984 an evening news program was produced entitled *Chip, ovvero quando il piccolo è... grande*! A program that was divided into two different sections. The first part was purely informative and consisted of interviews or external services, the second part had a more playful character and consisted of a quiz in the studio, led by two presenters flanked by a robot called Topo, made by Androbot Inc. by Nolan Bushnell. One of the two presenters, and curator of the program along with Giancarlo Monterisi, was Stefano Gentiloni, who said in an interview with Radiocorriere TV about the program

> Our goal is to explain what computer science, telematics and microelectronic technology is; what electronic processors, satellites, optical fibers and databases are and how they can be used, because this is the emerging world that is changing social and economic relations. Just

Fig. 6 Frame from the closing title of the television show Chip (1984). https://vimeo.com/206463037 last accessed 6/6/2021.

think of the introduction of intelligent robots in factories or computers in offices. (Rossi, 1984, p. 30)

To close the show, the possibilities of computer graphics were explored with a closing title performed by the couple Franco Battiato and Giusto Pio, who performed a song entitled Automotion in a video clip populated by numerous distortion effects and characterized by superimpositions thanks to the use of keying effects.

***Bit, storie di computer* (1984)**

Bit, storie di computer, on the other hand, was the first television program devoted entirely to the scientific popularization of computer technologies on private television. It aired on Italia 1 in 1984 and was hosted by writer, director and actor Luciano De Crescenzo.

De Crescenzo, graduated in hydraulic engineering, studied electronics as an autodidact and was employed for 18 years at IBM before devoting himself to his passion as a popular writer. Precisely because of his double vocation, he directed this program with the aim of teaching pills of

computer science and its various applications: from video games to researches in archeology, medicine, sports, music.

The television critic Ugo Buzzolan wrote in the pages of the national newspaper *La Stampa*:

> the episode I saw the day before yesterday, between 12 and 1 p.m., was pleasant in a friendly, almost varied dimension, and at the same time contained a topical information: the computer with which cartoons are packaged, the missile war […] maneuvered with computers, and maps drawn with the decisive help of the computer, and the personal computer for the use of the young woman who enters the telephone addresses of her heart. So this is a first – and, it seems to me, valid– sign of competition from the networks. Others may come in the near future. RAI keeps Piero Angela close, but at the same time thinks concretely about the development of a sector like this scientific sector, which affects us all directly and daily, in the three networks. (Buzzolan, 1984, p. 23)

Buzzolan attests it a great popularity and, at the same time, criticizes the Italian public television, encouraging it to engage in a field that, in his opinion, is neglected in favor of the history of the past of our civilization.

***Non necessariamente* (1986)**

The program *Non necessariamente*, broadcast in eleven episodes starting at 10 p.m. on RAI1, was defined by the presenter Carlo Massarini (Massarini was one of the creators of Mister Fantasy, a program on RAI1 TV, dedicated for the first time in Italy to video art and music videos) as a techno-variety program based mainly on the manipulative possibilities of the electronic image. Manipulative possibilities explored during the program by, among others, the artist collective *Giovanotti Mondani Meccanici* (GMM), which combined analog and digital technologies and reworked live action images using a graphics tablet and graphic manipulation software, to create *Le Avventure di Marionetti*, or the adventures of a character who, as the pun in the name suggests (in Italian,

Fig. 7 Frames taken from an episode of the television program *Non Necessariamente* (1986). https://www.youtube.com/watch?v=Po4M2WdlGvQ last accessed 6/6/2021.

marionette translates as puppet, while Filippo Marinetti was a futurist writer), hovered between comic situations and futuristic environments. As for the techniques used, we reproduce here the comment of Antonio Glessi (one of the founders of GMM) on one of his videos on his YouTube channel, in response to a user's question about what technique was used:

> There is no clear definition because it was a unique work of its kind. It was a mix of early digital technologies and basic analog techniques. Call it a digital flipbook of digitized and then digitally retouched black and white images. It was all done on an Apple 2 in 1985 and aired on an experimental TV program. The production was very inexpensive for the time, but too tricky and limited to become a standard. Only two years later, the digital

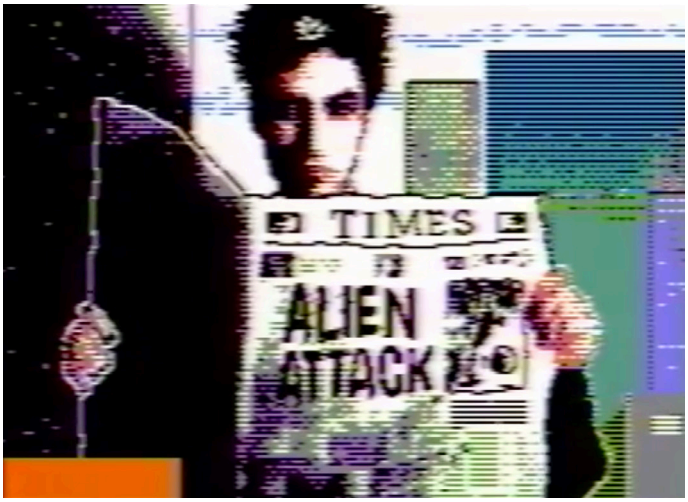

Fig. 8 Frame taken from the TV series: *Marionetti* (1986), performed by *Giovanotti Mondani Meccanici*. https://www.youtube.com/watch?v=fjXqlUpRSzE last accessed 6/6/2021.

> cartoon scene was dominated by the emerging Amiga, which was much better suited for this kind of work. (Glessi, 2019)

The scenography of the entire program was instead entrusted to the intensive use of chroma key, thanks to which the presenter passed through different eras between comic performances and excursions into the past, overlapping with old films or archival images. Although the common denominator was electronics, *Non necessariamente* brought together cinema, music and computer art, staging through a surreal visual journey the fragmented fruition resulting from the use of the remote control, typical of the new television (Gervasoni, 2010).

***Immagina, segni e sogni del nostro tempo* (1987)**

The growth and diversification of experimentation around the electronic image formed the prelude to what was probably the most ambitious television production among those briefly listed here: *Immagina, segni e sogni del nostro tempo*, broadcast on RAI1 between 1987 and 1988. The scenography was designed by one of the most important video artists of the time, Fabrizio Plessi, who drew a

Fig. 9 Frames from the television program *Immagina. Segni e sogni del nostro tempo*. https://www.youtube.com/watch?v=fFtZjPW6b_Y last accessed 6/6/2021.

backdrop that concretized the concept of a 'neo-baroque age' (Calabrese, 1987), as defined by one of the authors of the program, the television critic Omar Calabrese, while the critic Gillo Dorfles spoke of a neo-baroque taste in architecture in the same years. In this regard, Omar Calabresi said in 2006:

> At that time, I started from the conviction that the neo-baroque taste stems from the fact that our culture is a mass culture and, above all, that this mass culture, because of television, is oriented towards forms of surprise and originality at all costs, resulting from the worldwide diffusion of a culture of spectacle, as opposed to the field of information or pedagogy, which are more traditional strengths of public television. (Online interview, Purgar, 2006)

Plessi's scenography therefore consisted of an installation that mimicked the architectural and naturalistic design of the *Trevi Fountain* and consisted of a series of mobile elements. These elements were equipped with a cathode ray tube screen that showed videos of running water or clips from the show. Beyond the addressed themes of art, architecture, cinema, fashion, and advertising, *Immagina* develops a critical discourse on visual communication in the video and computer artworks shown, playing with a double meaning: the images and the imagination that emerges from them (Lagonigro, 2018)

CONCLUSIONS

At the end of the 1970s, the range of possibilities for managing images, sounds and films offered a scenario that was not very mature and fell short of the expectations that the media had aroused in the years before. Television was a medium that had reached its full maturity, but the relationship between television and computers was mainly linked to the possibility, even the necessity, of using the television screen as the video terminal of an electronic computer. In the early 80s, however, the artistic research related to electronic media, exceeds the canons self-referential and underground that had characterized it until a few years ago, and it was introduced in the palimpsest and mainstream television. The time that passes allows us to put a critical distance between us and the events narrated here, which allows us to start writing this story. A history that is also the history of the devices that first enabled the electronic manipulation of TV images. Integrated hardware and software systems that have helped to define the visual imagery of a medium, leading us to a general reflection on the impact of new technologies on changing the relationship between communication and art. A brief analysis of television shows conceived with the aim of educating the popular visual imaginary by introducing to the general public

some borderline experiences related to the use of hardware for digital manipulation, allowed us to place these shows in a cultural framework capable of producing and disseminating new electronic/digital visualities. A path that stretches from the *Telescolastica* of public television to the last productions of this period, in order to find a new field of experimentation between video art and popular television trends.

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