



# NESTORAS PAPANIKOLOPOULOS, A PIONEER OF DIGITAL ART IN GREECE

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**ABSTRACT** | The aim of this paper is to explore the work of the pioneer artist Nestoras Papanikolopoulos, who, since 1984, has created digital images using the computer as a medium at a time when this practice was almost unknown in Greece. It is noteworthy that, in Greece, for many years, the leading visual artists who used the personal computer as a means of artistic expression remained for many years on the margins of the visual discourse on contemporary art, as well as its official representatives, art critics, state museums and galleries. Now that the digital image has penetrated most aspects of human activity and, consequently, of art, it is time to acknowledge the contribution of artists who opened new paths in the adoption of a practice based on interdisciplinary thinking and contributed to the creative process of the immaterial image.

**KEYWORDS** | Digital art, media art, computer vision, media art archeology, computer art history

## Introduction

This paper sheds light on the work, the way of thinking, and the artistic vision of Nestoras Papanikolopoulos, one of the first digital artists in Greece.<sup>1</sup> Today, digital art is a broad and multidimensional field encompassing various practices and techniques that leverage digital technology to create artistic works. Originally, the term *computer art* referred to artistic practices using computers for expression and creation, including computer-generated music, digital image processing, and computer-generated graphics. However, through various technological advancements, “digital art” has largely supplanted computer art.<sup>2</sup> In this essay, we focus specifically on the domain of the visual digital arts.<sup>3</sup> While pioneers in this field have been predominantly located in major centers such as North America, Western Europe, and Japan, discussions have begun regarding the emergence of pioneering artists in peripheral countries like Greece and the contribution of these countries to digital culture both nationally and internationally.<sup>4</sup>

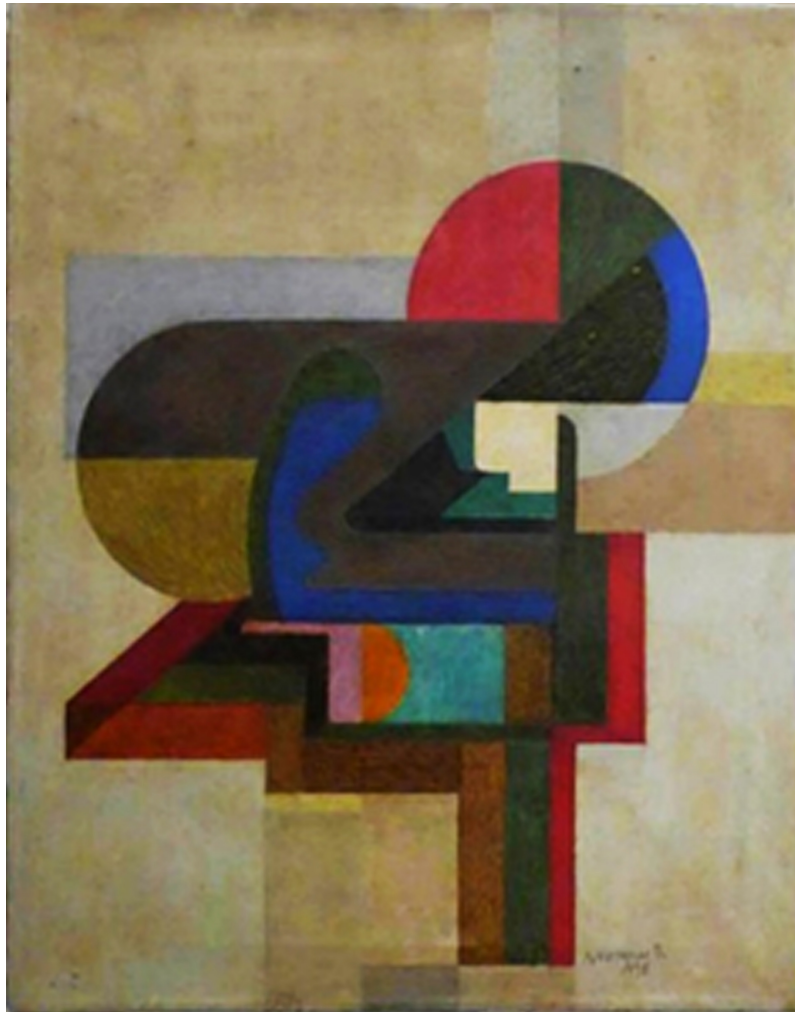
Our methodology relies on interviews, lectures, and archival material from works provided by the artist himself for the purposes of this research.<sup>5</sup> The supplementary bibliographical inquiry focuses on the broader historical context, considering the artist in the international art scene of the era.<sup>6</sup> At first, a brief reference is made to the broader

historical and artistic milieu. Then, in order to comprehend his contribution, a short biography of Nestoras addresses key points that have played a significant role in his artistic vision and his evolution as a digital artist.

Nestoras's works from 1983 onward, which are the focus of this essay, were created during the period in which the term *computer art* was being replaced with *digital art* in the early 1990s.<sup>7</sup> Therefore, Nestoras can be considered a “digital artist.” His first exhibitions of digital works, his commitment to the educational process concerning new media, and his engagement with the aesthetics of the digital image are also discussed in this paper.

In technological metropolises from the late 1950s to the early 1970s, the use of the computer for creative purposes in a variety of artistic processes was already in its infancy.<sup>8</sup> This was the outcome of a general shift in the Western world. Computer art was one of many new cultural fields that emerged from the interaction between technology and art. The pioneers were scientists, mainly mathematicians or artists, who collaborated with them. Initially, access to the new medium was not easy—nor were the computers simple to operate—mainly because they could only be found in industrial research laboratories and university centers.<sup>9</sup> The new works resulting from the computer's insertion into artistic practice were not accepted by people in the relevant artistic fields, and its historiography proved equally problematic.<sup>10</sup>





*Figure 1: Nestoras Papanikolopoulos, Motorcyclist, 1978. 60 × 80; acrylic paint on canvas. The images belong to the artist's archive, and he has granted permission to use them for research purposes.*

All these developments found Greece under difficult political, economic, and cultural circumstances, as a consequence of the Second World War, followed by the civil war and the military dictatorship (1967–1974). Within the context of the influences of the modern art movement, two fundamental currents had already formed from the interwar period onward: 1) modernism—a hybrid modernism with clear elements of national identity—and 2) “tradition.” These two primary aesthetic tendencies have always been in a struggle for dominance in artistic life and critical discourse.<sup>11</sup> Although organized modernist movements did not emerge in Greece as they did in Europe, one can see the influence of Idealism and, subsequently, Expressionism-Fauvism, Cubism-Orphism, and Surrealism in the work of Greek artists.<sup>12</sup> In Greek painting, the path toward abstraction began with early experiments in the 1930s. Abstraction was consolidated in the 1950s and became a dominant trend in the 1960s.<sup>13</sup> Several different expressions emerged, such as aspects of abstract expressionism and geometric minimalism. During the

military coup dictatorship (1967–1974), numerous artists and intellectuals fled Greece, mainly settling in Paris and other major European cities.<sup>14</sup> In the 1960s and 1970s, Greek artists closely followed European and international trends including Art Informel, Nouveau Réalisme, Pop Art, Minimalism, and installation art.<sup>15</sup> This stylistic pluralism was at its peak in Greece—as well as internationally—in the 1980s.<sup>16</sup> However, political, economic and social circumstances in the 1970s and 1980s did not favor experimentation with the high-tech revolution in art, resulting in the absence of a digital culture in Greece.<sup>17</sup> Digital art was an experimental art form and its value was often questioned, as it introduced new codes of aesthetics regarding style but also the presentation of a work. The Schools of Fine Arts and other institutions did not fund such experiments, so artists could only pursue digital art on the side. During this period, however, a notable example of digital art is the work of the pioneering mathematician, artist, and academic Pantelis Xagoraris, who, since 1971, had been exhibiting works created by computers, using

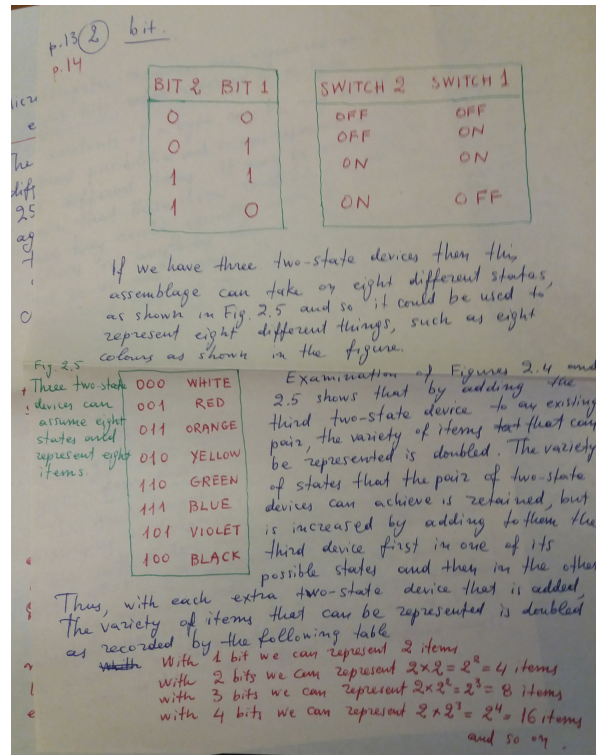
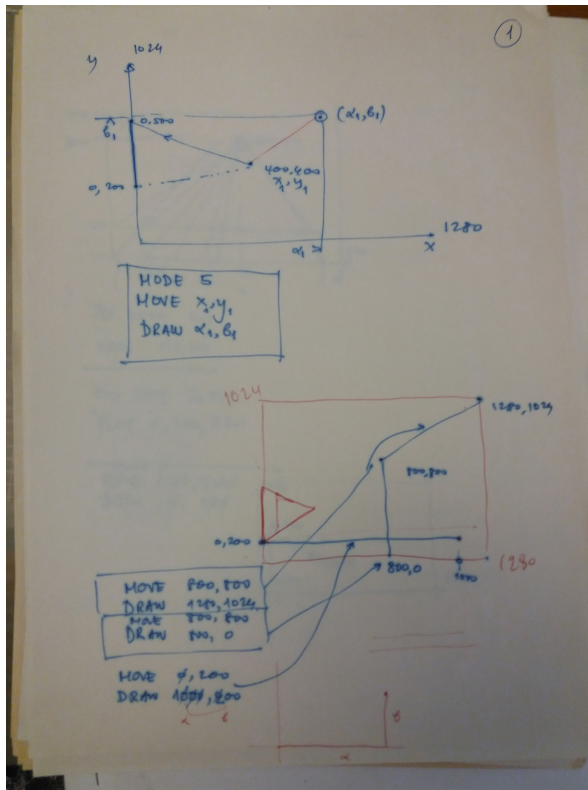


Figure 2. Two of Nestoras's many handwritten notes from his time in programming. Used with permission.

recent developments in mathematical relations and geometric structures.<sup>18</sup>

Global technological developments continued. In the late 1970s, with the invention of the microprocessor for computers, the price and size of computers was reduced and accessibility to them dramatically increased. As a result, close collaboration among artists and scientists was no longer necessary. Several exhibitions were held in Europe, the US, and Japan, with the main theme being the osmosis of art with the new medium.<sup>19</sup> In 1983, the exhibition *Electra*, curated by Frank Popper, was presented in Paris.<sup>20</sup> This exhibition was important for European standards, as it brought to light aspects of the unexpectedly multiple relations of the then innovative technology, including that of computers with contemporary art.

Among the visitors of the exhibition was the Greek artist Nestoras Papanikolopoulos, who saw there the potential of the computer in artistic creation. Nestoras—like many other Greek artists, intellectuals, and political émigrés—had been based in Paris since 1967. He returned to Greece in 1983, a few years after the restoration of democracy (1973).

## Biography: Studies and Early Artistic Work

Born in Athens in 1928, Nestoras was connected with the engraver Tassos (Anastasios Alevisos) from an early age and received an education from the sculptor Thanasis Apartis.<sup>21</sup> He studied painting at the Athens School of Fine Arts (ASFA) under the tutelage of the renowned modernist Greek painters Yannis Moralis and Spyros Papaloukas and was also trained in Byzantine icon painting by Agenor Asteriadis and Fotis Zachariou.<sup>22</sup> In the 1960s, Nestoras joined Omada Technis Alpha and, alongside other artists, attempted to introduce visual art to the public through presentations and seminars as well as by popularizing concepts of art. Through a multitude of initiatives, Omada Technis Alpha brought together numerous left-wing artists and created a framework within which political thought could meet the aesthetics of modernism. Omada Technis Alpha's demands included the necessity to institute a museum of contemporary art, the formulation of a cultural policy by the state, while concurrently expressing its expectations for social change.<sup>23</sup> During that period, painting religious icons and conserving Byzantine and post-Byzantine

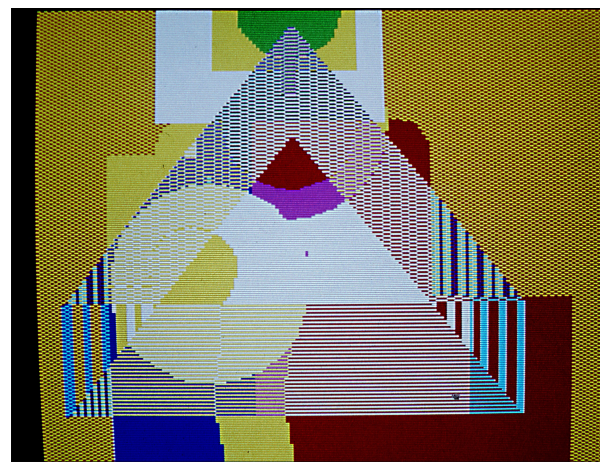
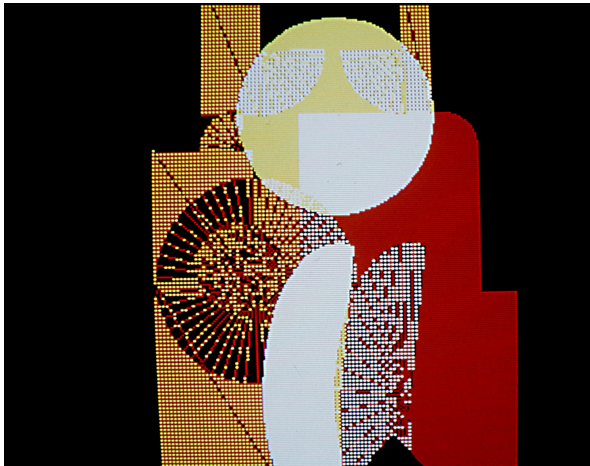


Figure 3. Nestoras Papanikolopoulos, 002 and 003, 1984. Computer art. These files have titles 002 and 003 and are digital prints produced using a dot-matrix printer. Used with permission.

icons in Patmos, Santorini, and Athens were the primary sources of Nestoras's financial income.

As a young artist-researcher—and genuine modernist—Nestoras turned his search to the new mechanical media of the 1960s: the moving image and video. He conducted his initial experiments in video production using a 8mm camera and later advanced to a Super8 film camera. Simultaneously, he delved into traditional animation techniques, such as stop-motion, utilizing a darkroom.<sup>24</sup>

As a painter, Nestoras followed the expressive means of the modernist vocabulary.<sup>25</sup> Starting from figurative works, he quickly turned to a geometric abstraction with a Constructivist aesthetic.<sup>26</sup> Using an abstract language, he sought rhythm through the composition of geometric forms and color combinations. Geometric schemes and clean, flat forms became key components of his works. Even human figures, when they do appear in his work, become indistinguishable because of the way they are treated as subordinate to the strict organization of geometric shapes. Nestoras's main visual vocabulary was limited to three forms: the circle, the rectangle, and the triangle and their possible variations in a composition.

In 1980, an important solo exhibition of Nestoras's work—*Nestoras Papanikolopoulos: A Selection from his Painting Career*—took place in Athens at the Nees Morfes Gallery.<sup>27</sup> In the press release for the exhibition, in his

artist statement, he mentions the factors that played the most important role in his artistic pursuits: the study of Byzantine and post-Byzantine painting and his cultural experiences in Paris. Conserving Byzantine and post-Byzantine icons was his primary means of supporting himself while living in France. In Paris in 1981, he presented another solo exhibition at the Darial Gallery entitled *Nestoras*.<sup>28</sup> Besides these solo exhibitions, Nestoras participated in a few group exhibitions in Greece and Paris. Keeping a low profile reflected his aversion to the commercialization of art, and he therefore dedicated himself more to the social role of art.

## Nestoras as a Byzantine Constructivist and Left-Wing Digital Artist

In 1984, when he returned to Greece from Paris, Nestoras purchased his first computer. At that time, using a computer required specialized programming knowledge that made computers inaccessible to most people. Machine language, unsurprisingly, was also more comprehensible to mathematicians. In Greece, one could find a selection of imported specialized magazines with programming guidelines and simple command instructions.<sup>29</sup> Although he lacked prior knowledge of mathematics, Nestoras began using these resources to teach himself programming.



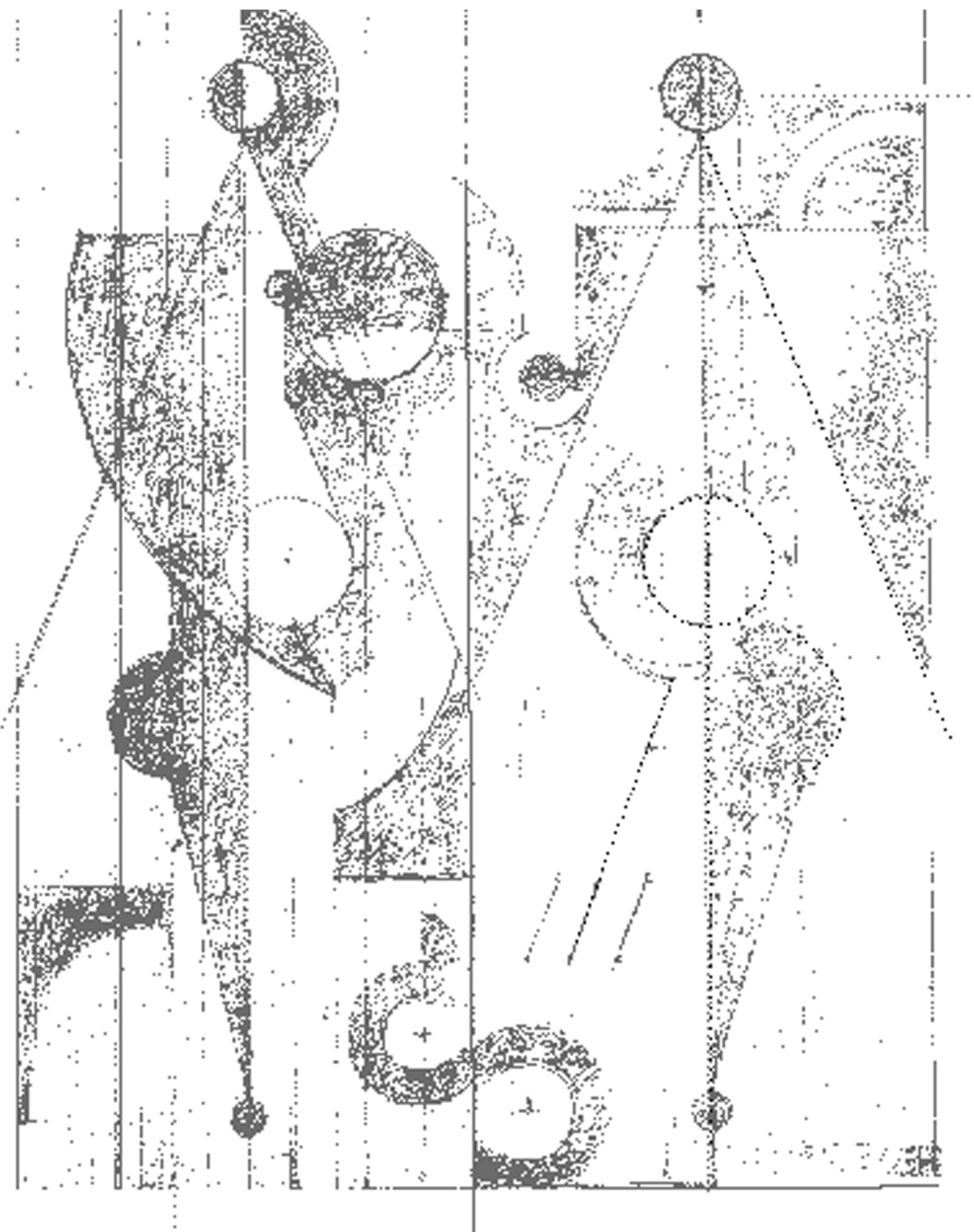


Figure 4. Nestoras Papanikolopoulos, AD001, 1984. Computer art. Used with permission.

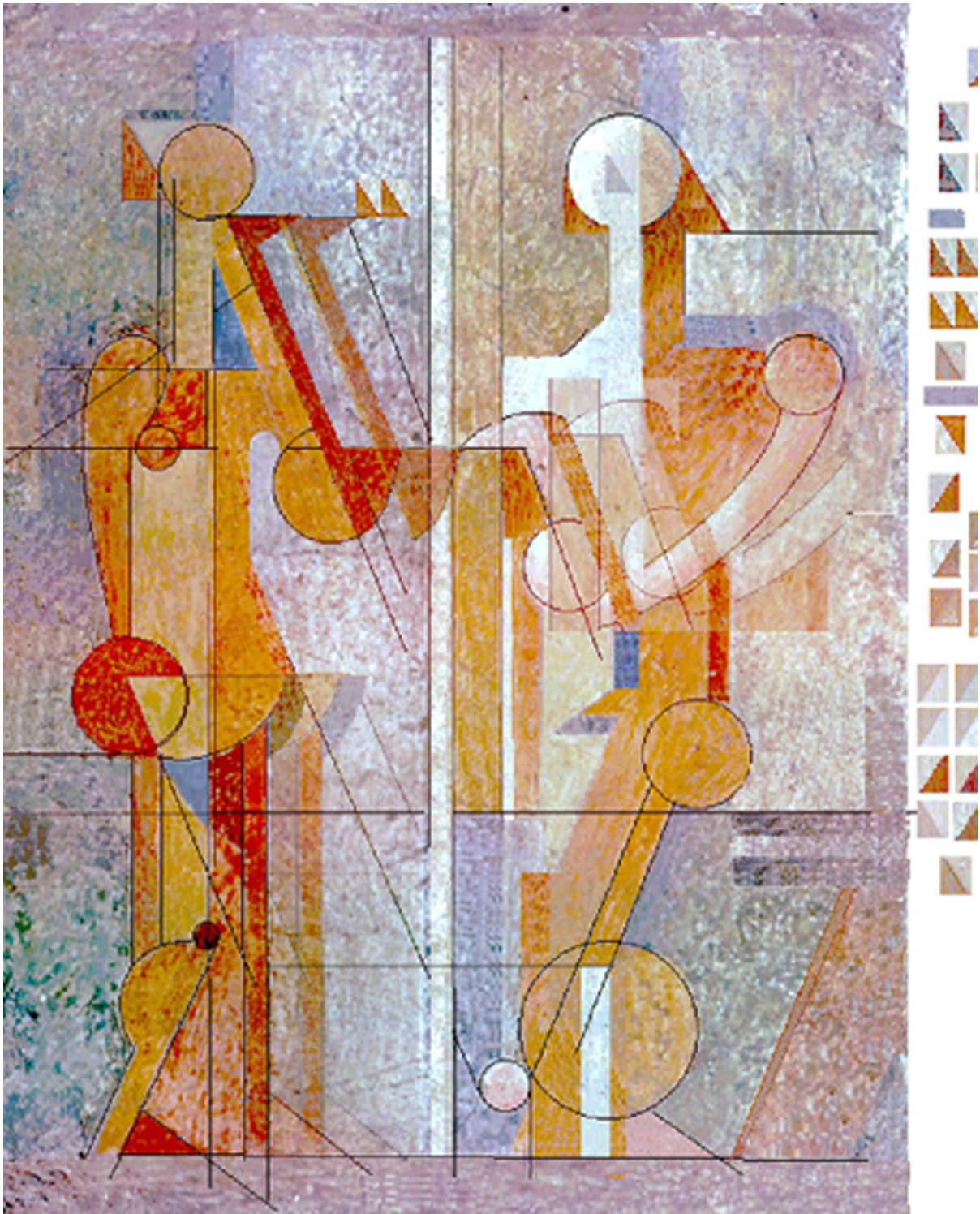


Figure 5. Nestoras Papanikolopoulos, AD\_00, 1984–1987. Computer art. Most of Nestoras's files of digital images have titles with initial letters and numbers; this was his way of distinguishing the many variations of the same theme from one another. Used with permission.



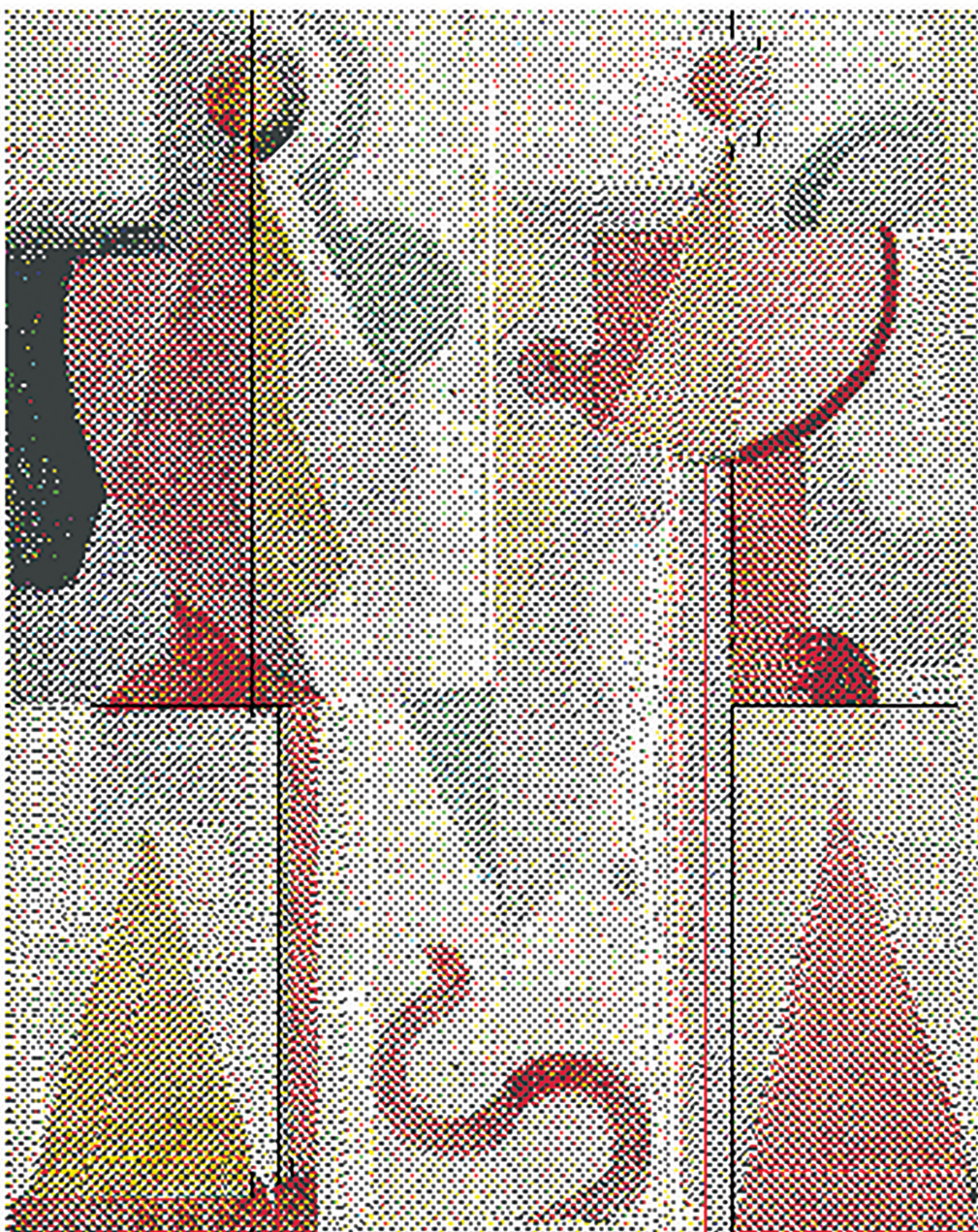


Figure 6. Nestoras Papanikolopoulos, *AMD 104*, ca. 1984–1987. Computer art. Used with permission.



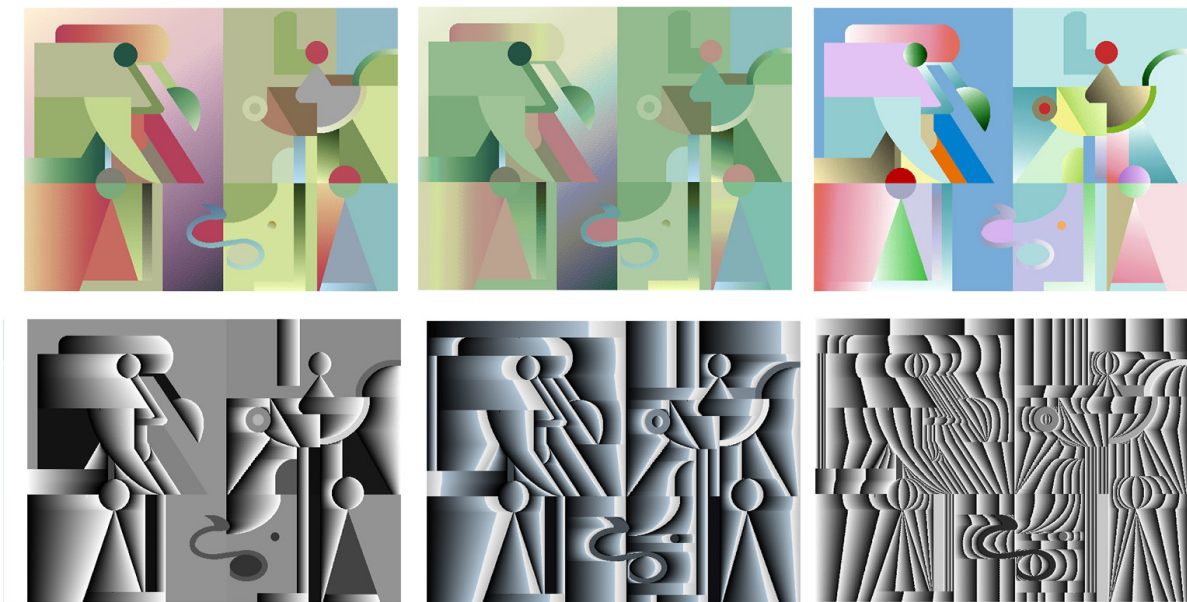


Figure 7. Nestoras Papanikolaopoulos, *Adam and Eve*, between 1985 and 1986. Computer art. Used with permission.

The artistic skills he already possessed proved to be useful tools that could be adapted to the new medium. Nestoras created digital images using Basic and Pascal code on BBC and AMIGA computers in a low-resolution array; he then processed their aesthetics via the available colors supported by the machine language at that time.<sup>30</sup> The main reason for choosing the computer as an artistic medium was to extend the combinatorial interplay of flat shapes that he had already explored in previous years; in this sense, the new medium was perfectly suited to him. It must be stressed that his personal attributes as well as the constructivist organization and design of form, rhythm, and use of successive color layers in his work all facilitated his first encounter with the computer. It is not a coincidence that in the 1960s, the constructivist idiom contributed to the transition to computer art of many pioneering artists worldwide.<sup>31</sup>

Moreover, in Nestoras's case, the use of geometry as a structural element of the composition and the application of successive layers of color could be regarded as two common features among constructivism, digital art, and Byzantine and post-Byzantine icons. The geometry and rhythm associated with a visual metaphor of the transcendental are particularly important in these latter, devotional works. The geometric patterns and proportions inherent in the design of compositions and faces are considered to represent the harmony of divine nature. Therefore, it is no coincidence that Russian avant-garde artists in the first decades of the twentieth century, who were also familiar with Byzantine and post-Byzantine painting, assimilated this tradition as a formalistic and conceptual reference into this new abstract visual language—and its ideological connotations—within a

completely secular framework.<sup>32</sup> Geometry plays an important role in digital art as well. Artists use lines, shapes, and geometric algorithms to create digital images and designs. With digital tools, they can create complex geometric structures, explore light and color, and perform precise digital transformations in an algorithmic manner.

Nestoras's early experiments with programming resulted in a series of digital prints created using a dot-matrix printer that gave a particular structure to the pixel that gives the impression of embroidery.<sup>33</sup> These works—numbered 1, 2, 3, and so on, instead of being given titles—are characterized by clean, geometric shapes and vibrant colors, constituting an early example of digital printing's potential.

In the uncharted world of computers in the early 1980s, Nestoras chose, after initial trials, a more archetypal theme, namely the Adam and Eve story as a starting point for experimentation. He had already painted Adam and Eve in traditional media, albeit in his own constructivist way, when he started to interpret this theme using digital tools. As he jokingly mentioned himself, he acted as God by creating the original couple using pixels (i.e., Picture element). He then realized that he could go on to create several variations. The computer helped him to become more minimalist and abstract. At the same time, it enabled him to introduce movement and multiplicity to the images. From the very first moment, the digital image became a constantly changing work in which each form evolved perpetually. The final image, resulting from the continued production of variations, was completely different from the original composition.

Nestoras's attempt to depict the same archetypal theme, partly reflects a practice of Byzantine and post-Byzantine

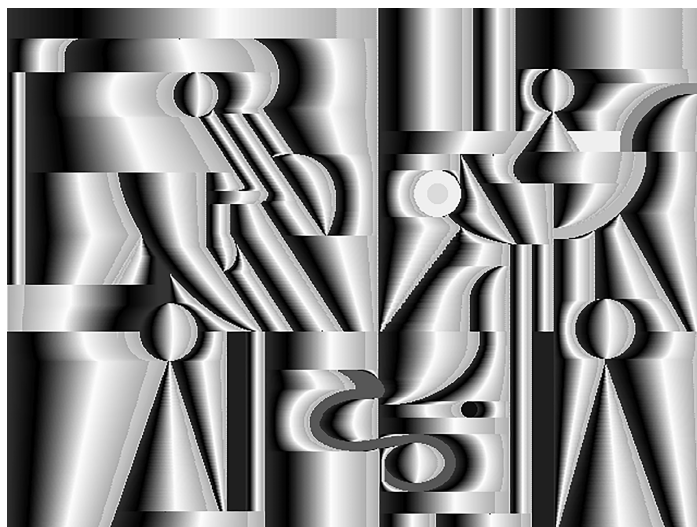


Figure 8. Nestoras Papanikolopoulos, *AGR4E*, between 1985 and 1986 (detail of Adam and Eve). Used with permission.

painting, as human figures and features in this type of devotional art are drawn according to iconographic patterns that are quite unchangeable in diachrony.

The term *autophotous* (self-illuminated) in Byzantine and post-Byzantine painting refers to the use of light that appears to originate from the image and its particular features itself, rather than from an external light source. This aesthetic approach, based on the technique of layering paint from dark to increasingly lighter layers, has been widely used in both religious icons and murals. Although the LCD and LED screen technology of modern computers differs of course from the *autophotous*<sup>34</sup> quality of Byzantine painting, we could argue that they share a similar visual effect.

Nestoras was not a devout Christian; however, his Marxist ideology combined with a Christian visual practice and study of orthodox religious culture followed him throughout his artistic career. He believed in sharing all his discoveries with the community: he did not sell his works, instead giving them away to those he liked. He rarely signed works, and when he did, he used capital letters and numbers instead of his name. He believed in the free exchange of ideas and art through the internet but also expressed his concerns about the protection of artists' intellectual property rights. He resented the companies that changed operating systems and programs so often that it became impossible to present his works that had been created using older technology.

Nestoras's creative thinking related to the organization of composition and integrated elements of Constructivism and Byzantine practice even before his transformation into

a digital artist. Thus, his work was easily transferred to the personal computer. To comprehend the digital image and commence organizing its foundational elements, namely pixels, within a program, he integrated routines into his software containing a set of commands. These commands, when executed through algorithmic sequences, activate structured modules on the screen.<sup>35</sup> For each shape, he defined parameters within the standard sequences that determined their size, position on the screen, and color. He sought the balance of the image, constantly disrupting it by introducing new elements. *Delux Paint* (released in 1985) was one of the first computer drawing programs and was one of Nestoras's favorites. In this program one could, after having created a design and selected colors, proceed to the "recycling of the palette." This was an operation that sequentially alternated the selected colors and created a unique animation. Depending on the selected color groups, the transitions could be soft or hard, sharp or smooth. From these moving images, he generated snapshots that can be described as instance-snapshots further demonstrating his interest in transformation.

Nestoras also drew upon his knowledge of animation techniques by stitching together several successive snapshots in a flow chain. In this way, he added an element of temporal progression among all the images, giving his work a sense of duration. For Nestoras, this was an interesting new aspect of his creation. Computer art pioneer Frieder Nake described this practice in a 2019 article, arguing that, for an artist using an algorithm to create an image, conceiving a series of images simultaneously is a reasonable consequence.<sup>36</sup> Nestoras's work *The Motorcyclist* was approached in an analogous manner.<sup>37</sup>

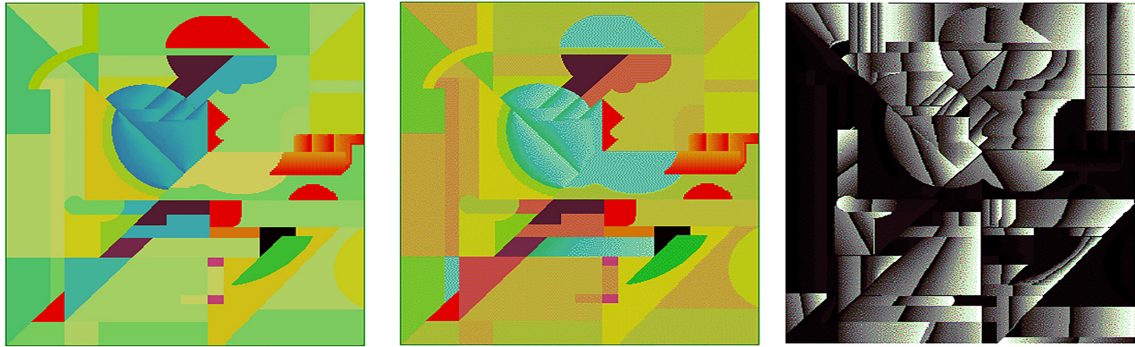


Figure 9. Nestoras Papanikolopoulos, from the *Motorcyclist* series, 1985. Computer art. Used with permission.

In an interview published in 1987, Nestoras argued that new stimuli are created by the alternations and successive variations of the image, altering the original composition. He believed that artistic practice and ways of viewing the artwork would change with the introduction of the new medium, thereby changing the ways in which we see and think.<sup>38</sup> He preferred creating and editing images of his own imagination to capturing and modifying ready-made images from photographs.

His entire view on digital art is captured in a text posted on social media by the artist and writer Polyxeni Kasda immediately after his death:

*I realized, thanks to my contact with the computer, that drawing a line is one of the most difficult and complex things in the creative and thinking process. When I am able to process a small point in relation to an infinite number of illuminated points, to put them next to each other in a row, to construct a line or use more complex ways to construct a circle or a square, shapes that we used to think of as simple, I realize that they are not simple at all. When we make a broad-brush stroke or a comma stroke on the canvas, we think it is quite simple, but why draw a line in this or in that spot? What is in your mind? The painter's entire thought process during the creation of the work, which often goes unnoticed, is revealed thanks to the computer.*<sup>39</sup>

The artist who chooses to program the computer is confronted with their own inner thinking. As it has been pointed out, programming is an act of deep self-awareness.

## The First Exhibition-Presentations of Nestoras's Immaterial Works

In April 1986, Nestoras presented his experiments in digital art in a group exhibition at Gallerie F entitled *Proto Dokumento 1986* (*First Document 1986*), co-organized by the journal *Dipli eikona* (*Double Image*) and the General Secretariat for Youth in Greece.<sup>40</sup> The work he contributed was titled *Ilitaria Computer Graphics* (*ilitario* is a type of scroll). With this imaginative reference to scrolls—texts on rolled parchment, papyrus, or paper that are read as they are unrolled, vertically or horizontally—Nestoras alludes to the correlation between his work and Byzantine iconography. Each image appears without “undoing” the previous one, just like in a scroll. There is a constant flow of images that does not occur when leafing through a modern book. By choosing this element from his cultural heritage, he conceptually transmuted the scroll, associating it with modern computer graphics. Moreover, it is notable that in Byzantine and post-Byzantine iconography, these scrolls are depicted openly in the hands of saints, prophets, and apostles.<sup>41</sup> Symbolically, therefore, Nestoras could be described as a “new apostle” who introduces the new medium, while being fully aware of its radical character.

During the same period, in April 1986, Nestoras exposed the results of his research on the digital image through a projection of images and a public discussion in the amphitheater at the French Institute of Athens, in a solo exhibition-presentation entitled *Images informatiques, travail experimental* (*Computer Images, Experimental Work*).<sup>42</sup> In this exhibition, Nestoras



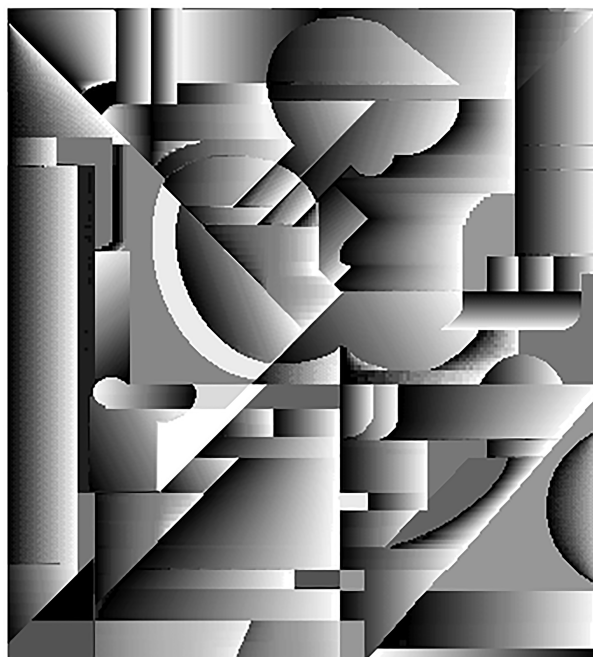


Figure 10. Nestoras Papanikolopoulos, CUB-18A, 1985. Computer art. Used with permission.

presented his innovative approach to digital art by showcasing intangible images on screens. This was a milestone in Greece as it was one of the earliest instances of visual works created using a computer and shown on a screen in a solo exhibition. While Pantelis Xagoraris had previously exhibited his works on computers with similar techniques, Nestoras' presentation at the French Institute was remarkable for integrating digital art within a theoretical context, thereby fostering discourse in the field. This exhibition not only contributed to the increasing recognition of digital art within the Greek artistic community but also sparked broader discussions about the convergence of art and technology.

Nestoras also intended to exhibit these images in material form. This hybridity was an essential part of his work, but also of many other artists working with computers during this time. Therefore, his first silk screen printing was made by photographing his works on a computer screen. After his experimentation, he found out that this process had weaknesses in terms of the quality of the final image: glossiness, reflections, and blur due to the incredibly low resolution and limited colors of printers during this period. Therefore, Nestoras used traditional methods that he had already been familiar with since his time as an engraver. From the prints of his first Hewlett Packard printer, made with the aid of a workshop, metal plates were produced. These plates had the characteristics of a digital image with

visible pixels exactly as they appear on the screen. Part of these works were exhibited in the 1987 solo exhibition entitled *Painting and Computer Graphics* at Galerie F.<sup>43</sup>

In the 1990s, Nestoras also used off-the-shelf software design solutions. New programs enriched his visual vocabulary, and he continued to shape his own visual language by switching from one computer to another. In 1992, at the so-called Union of Arts and Sciences Studies "Enope," he presented an exhibition-event in collaboration with Makis Faros, an early electronic music artist. An installation with animation on many screens and live electronic music, this was Nestoras's last public exhibition as he was then, at the age of 64, experiencing health problems. The dizzying advancement of technology and its need to become faster and more efficient quickly replaced earlier tools, so Nestoras's early works were no longer able to be shown. However, Nestoras continued to work with his computers and sharing his concerns about art and society with friends, despite health complications and difficulties with his eyesight, until the end of his life.

## Nestoras as a Pedagogue

In 1983, while art schools in countries such as the UK and the US had already incorporated the computer medium into their curricula and had their first graduates, Greece,



Figure 11. Prophet Malachi holding an ilitario (scroll), 16th century C.E. Fresco. Holy Monastery of Dionysios, Mount Athos.



Figure 12. St. John Damascene holding an ilitario (scroll), 1854, by the hand of Mattheos Ioannou, Katholikon, Lite, he Holy Monastery of Pantokrator, Mount Athos..

with only one School of Fine Arts at the time, lagged behind.<sup>44</sup> It is worth noting that UK and US institutions were often not the norm, as they were exceptions to standard practices worldwide. Nestoras was in fact one of the first artists to be aware of the value of such studies in new media and, as a teacher, he attempted to establish conditions in Greece that would make the Athens School of Fine Arts the center of such studies, even though his proposal to incorporate new media into its curriculum was not accepted.<sup>45</sup> Nestoras systematically organized informal workshops for students and seminars on digital art in the context of the collaboration between EVMAROS (an art space and gallery) and the Centre for Contemporary Music Research (KSYME).<sup>46</sup> It becomes apparent that, in addition to being a pioneer himself, Nestoras was also a teacher who contributed to his students' immediate familiarity with this new medium.<sup>47</sup> In fact, much of his influence on a younger generation of artists came from those years.

In 1986, Nestoras created a digital application for children for the Acropolis Museum with the aid of the programming language *basic*. This was an innovative project in Greece. After making drawings of some of the museum's sculptures, he converted them into code to be used in the application with texts by the archaeologist Cornelia Hadjiaslani. A new aspect of the computer

was demonstrated: educational, digital games were implemented with the pedagogical aim of familiarizing the user with the monuments of ancient Greek civilization.<sup>48</sup>

## Exploring the Content and Aesthetics of the Digital Image

Nestoras discussed his considerations in a series of lectures, conferences, and workshops as well as on Greek television. In a special tribute to video art in the 1987 catalog of the 28th Annual Thessaloniki Film Festival, he referred in general to the moving image as "painting in time and space," expressing his optimism for the use of the computer and its impact on visual art, regardless of its then limited recognition in the country.<sup>49</sup>

At a 1987 conference of the Hellenic–French Scientific and Technical Association held at the National Hellenic Research Foundation in Athens, Nestoras acknowledged the need for a new mode of presentation and social function for the digital work of art. In fact, in this early era of computer art, the engagement of several individuals specializing in programming, visualization, or the operation of the computer were essential. In this sense, computer art was a collective endeavor.

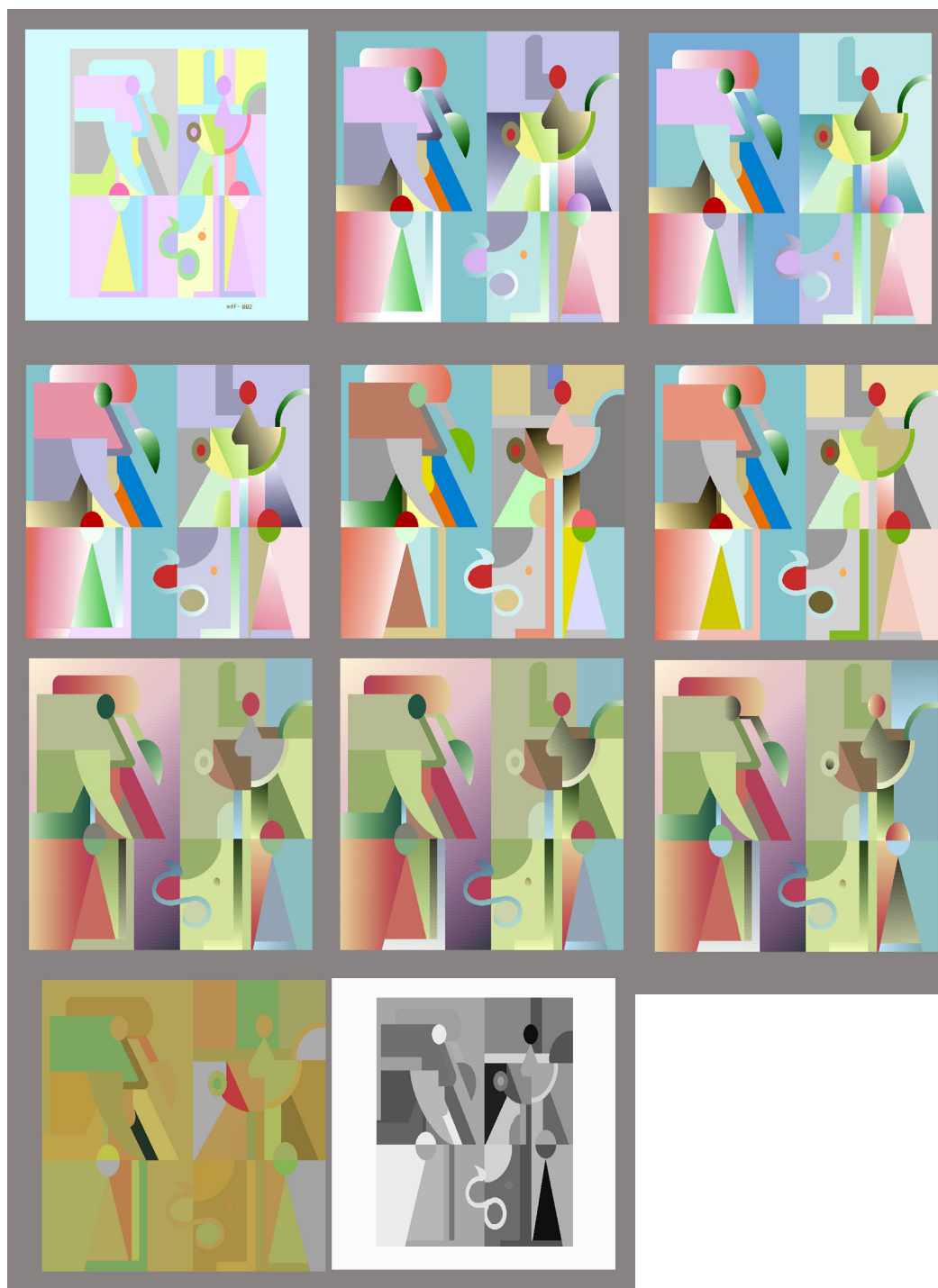


Figure 14. Nestoras Papanikolopoulos. *Ilitaria (Scrolls)*, 1986. Computer art. Used with permission.



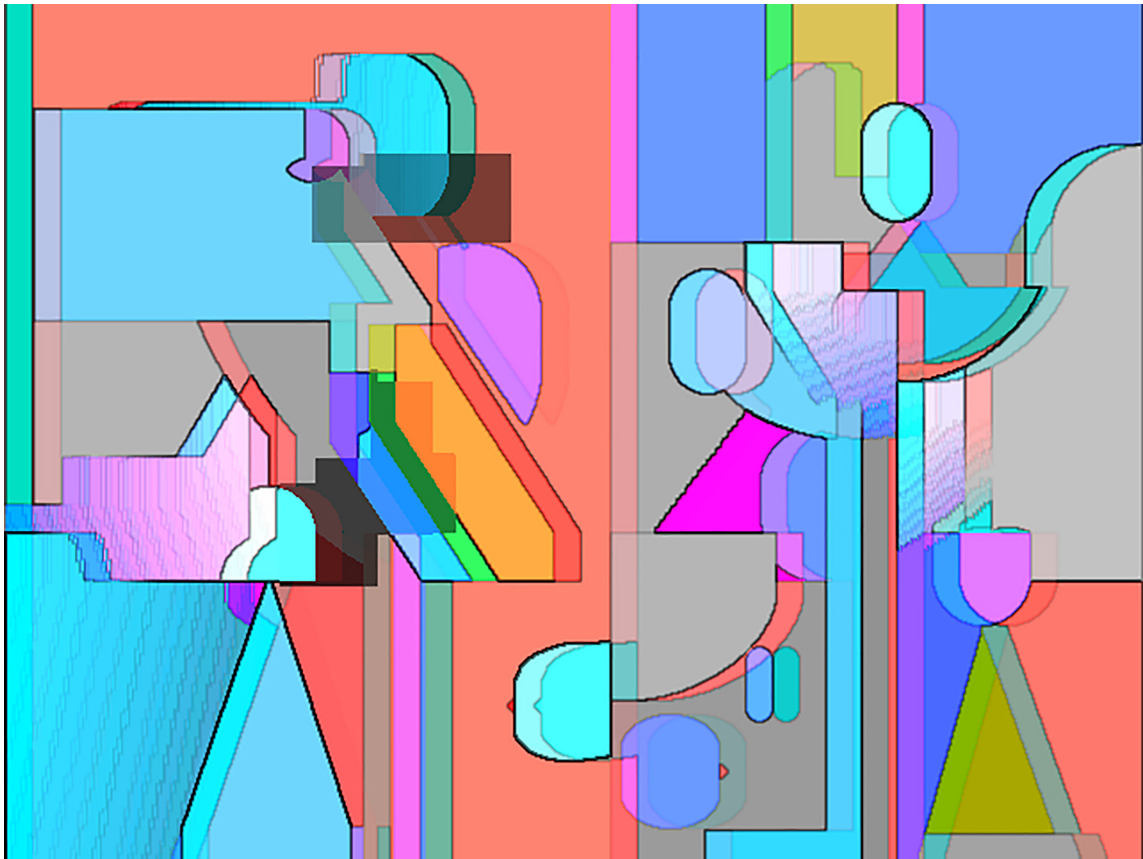


Figure 15. Nestoras Papanikolopoulos, ADM\_A01A, 1986. Computer art. Used with permission.



Figure 16. Nestoras Papanikolopoulos, SCLMA4, 1986. Computer art. Used with permission.

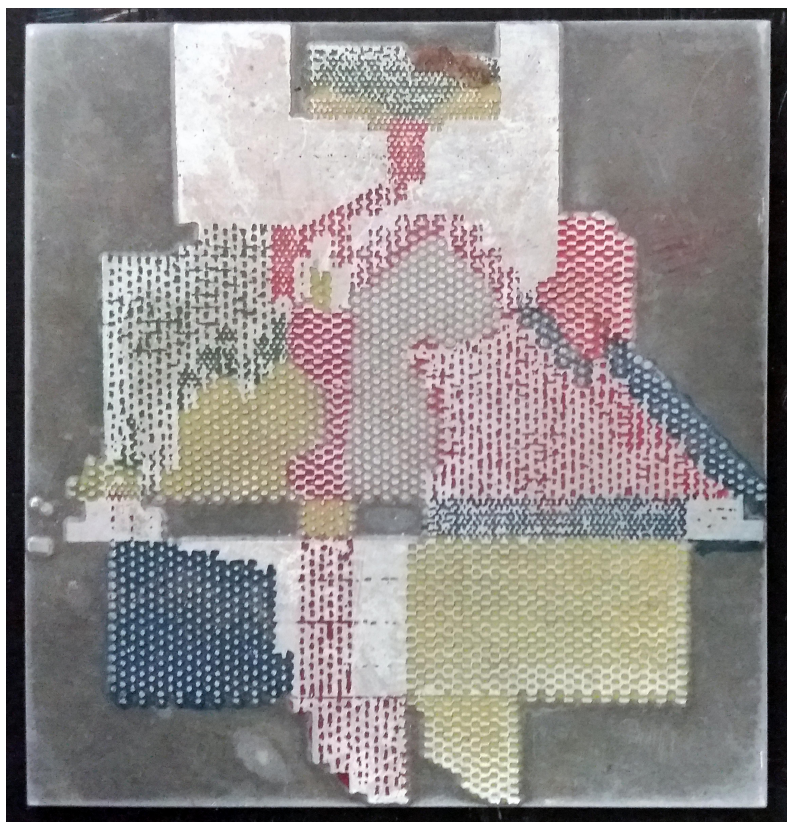


Figure 17. Nestoras Papanikolopoulos, metal plate with visible pixels to be used for printing in the traditional way, 1986. 10 × 10 cm. This is from the time when Nestoras's digital printer did not give him the result he was looking for. Used with permission.

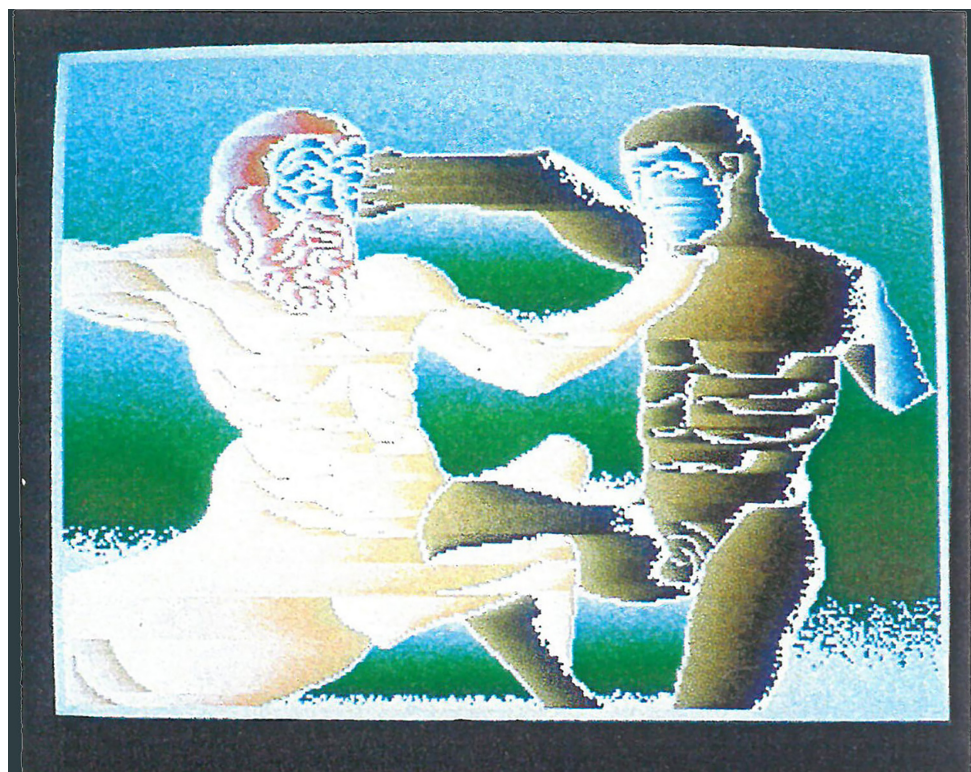


Figure 18. Nestoras Papanikolopoulos, *The Fight of the Centaur with Lapith from the South Metope 2 (Pheidias's Workshop)*, 1986. Digital project from the educational program of the Acropolis Study Centre. Used with permission.



Many years before the internet became integrated in all aspects of human activity, Nestoras foresaw the preconditions of unmediated access to digital art from the public—in other words, the amazing possibility of exhibiting digital works concurrently in different parts of the world, without galleries' interventions.<sup>50</sup> What seems obvious today was not taken for granted in 1989 around the world and especially in Greece. Nestoras stated in a lecture that "the development of new concepts in the field of art with the aid of computer technology will be conditioned by the approach of both the artists and the art theorists."<sup>51</sup> He envisaged that the computer would prove to be as valuable and essential to digital visual art as it would be to other practical applications.

Nestoras comprehensively discussed the aesthetics of the digital image in his lecture "The Aesthetics of the Digital Image and the Greek Reality of 1989," delivered at the 1st Autumn School of Computer Graphics, a program he helped to organize.<sup>52</sup> Even though he referred to the pursuit of new aesthetic ideas and perhaps different paths of the artist-public interaction, he pointed out the limited involvement of Greek artists in computer art at that time, despite the wide diffusion of innovative technologies across the country, and stressed the invasion of innovative technologies based on ready-made software for commercial use in applied arts. The widespread application of this technological development was prompted in Greece for practical reasons, namely profit and mainly in commercial sectors. As Nestoras argued, ready-made software used by graphic designers for advertising also nurtured the aesthetic culture, thus shaping the aesthetic orientation of the digital image. He did not, however, exclude the possibility of their use for purely artistic and experimental purposes.

## Conclusions

Nestoras Papanikolopoulos was a pioneer of digital art in Greece, as he expressed the aesthetics of modernity by

combining traditional artistic practices with high-tech electronic means. He was indeed an outstanding visual artist with a broad education, having immersed himself in painting, printmaking, sculpture, and hagiography, as well as having experimented with analogue video, photography, and stop-motion animation. Nestor followed a natural path toward digital art and digital image programming in the early 1980s, incorporating elements of Byzantine iconography and Constructivism. His broad artistic background, combined with his interaction with the computer, resulted in the emergence of new forms that clearly characterized his work—a pure product of his individual conquest. Maintaining morphoplastic elements, such as pure geometric shapes, he created personal, digital images that evolved into something original and unique, thereby marking his innovation. He innovated, responding to the need for an artworks' motion, transmission, and reproduction through the computer. The static formalistic image, in conjunction with its digital movement, resulted in a new metamorphosis of visual effect. Even though his work shows his fascination with visual plastic values, he constantly explored the interplay of deconstruction and reconstruction. His work, free from the 1980s prejudice against computer art and initial difficulties in its reception, may well find its place in the history of Greek avant-garde art.

For Nestoras, the process of creation in continuous motion in time was more significant than the final outcome. The mechanical medium—the computer—may have become a creative tool in his hands, but it was the process itself that was the catalyst for his work. We can conclude from the above that Nestoras was a restless explorer of aesthetics and the digital image, an innovator, a pedagogue, an independent artist in perpetual movement throughout his life and work.

## NOTES

1 Acknowledgments to Florentia Oikonomidou, visual artist and Professor of the Department of Product and Systems Design Engineering of the University of the Aegean, to Angeliki Garidis, art historian and Nestoras Papanikolopoulos's niece, for her contribution to archival material, and to the artist Makis Faros, Nestoras's collaborator in the early 1990s on electronic music composing, for the valuable information he provided. Nestoras passed away on November 18, 2022. He left behind a large archive, the research of which forms the main part of the doctoral research of one of the two authors.

2 Grant D. Taylor, "Introduction: Unorthodox," in *When the Machine Made Art: The Troubled History of Computer Art* (New York: Bloomsbury Academic, 2014), 1–24.

3 Pioneers such as the Greek composer of electronic music, Yannis Xenakis, have been internationally recognized for their contributions to merging music with computer technology. While Xenakis's work focuses primarily in the realm of electronic music, it underscores the broader trend of artists across various disciplines embracing digital tools and methodologies for creative expression.

4 Santorineos, Manthos and Schizakis, Stamatios, "Approaching the work of Pantelis Xagoraris through contemporary digital spaces. proposal for an experimental course through an artistic 'action' with the Virtual Artistic Laboratory @postasis platform [Erasmus+]." Athens, January 23, 2020, [https://www.academia.edu/41705655/Homage\\_to\\_Pantelis\\_Xagoraris](https://www.academia.edu/41705655/Homage_to_Pantelis_Xagoraris); Anna Hatzigiannaki, "Ellines Protoporoi Tis Psifiakis Technis [1957–1989] [Greek Pioneers of Electronic Art [1957–1989]]," in *I Epochi Tou Diastimatos—Ilektroniki Techni Stin Ellada [1957–1989] [The Age of Space-Electrical and Electronic Art in Greece [1957–1989]]* (Athens: Asini, 2017), 91–113; Markella-Elpida Tschila, Faye Tzanetoulakou, and Miltiadis Papanikolaou, "Forms of Digital Art in Greece: An Avant Garde Art in Dynamic Development," *International Journal of Arts, Humanities and Social Studies* 3, no. 3 (May–June 2021): 44–50, <https://sdbindex.com/documents/00000268/00000-98037.pdf>; Areti Adamopoulou, "Sto Pedio Tou Ephimerou: Skepsis Yia Ti Methodologia Tis Erevnas Stin Elliniki Ikastiki Skini Meta to 1960 [In the Fields of the Ephemeral: Thoughts on the Research Methodology on the Greek Art Scene after 1960]," in *Istoria Tis Technis Stin Ellada [The History of Art in Greece]*, edited by E. Matthiopoulos and N. Hadjinicolaou, 85–101. Heraklion: Crete University Press, 2003; Schizakis Stamatios, "The Introduction of the New Media Art Practices in Greece in the 1970s and the 1980s" (PhD diss., University of Sunderland, 2022), <https://sure.sunderland.ac.uk/id/eprint/14699/1/14699.pdf>.

5 Iset—Contemporary Greek Art Institute, accessed April 17, 2024, <http://www.iset.gr>.

6 Part of this archive is held at the Institute of Contemporary Greek Art, as well as in the library and archive of the National Gallery of Greece.

7 Taylor, "Introduction."

8 Thomas Dreher, "History of Computer Art," IASLonline Lessons/Lektionen in NetArt, 2020, <http://iasl.uni-muenchen.de/links/GCA-III.2e.html>; Frank Dietrich, "Visual Intelligence: The First Decade of Computer Art (1965–1975)," *Leonardo* 2, no. 19 (April 1986): 159–69, [muse.jhu.edu/article/600927](https://muse.jhu.edu/article/600927).

9 W. Franke Herbert, "Computer Graphics — Computer Art," in *History of Computer Art* (Berlin, Heidelberg: Springer, 1985), 93–152, [https://doi.org/10.1007/978-3-642-70259-4\\_2](https://doi.org/10.1007/978-3-642-70259-4_2); Ruth Schwartz, "Computers and the Arts," *College Teaching* 34, no. 1 (1986): 11–16, <http://www.jstor.org/stable/27558149>; Lynn Gamwell, *Mathematics and Art: A Cultural History*, (Princeton, NJ: Princeton University Press, 2016), 355–84, 455–98.

10 Areti Adamopoulou, "Amichanes scheseis: Psifiaki techni kai i historiographia tis [Awkward Relationships: Digital Art and Art Historiography]," in *I Techni tou 20ou eona: Istoria, Theoria, Empiria [Art of the 20th Century: History, Theory, Experience]* (Thessaloniki: Aristotle University of Thessaloniki, 2009), 9–19.

11 The timeless nature of the dichotomy in visual arts and critical discourse is explored in Antonis Kotidis's books. For the interwar period, see Antonis Kotidis, *Modernismos kai "Paradosi" stin elliniki techni tou mesopoleμου* [Modernism and "Tradition" in Greek Art of the Interwar Period], vol. 1 (Thessaloniki: University Studio Press, 1993); For the postwar period, see Antonis Kotidis, *Modernismos kai "Paradosi" stin elliniki metapolemiki kai synchroni techni* [Modernism and "Tradition" in Greek Postwar and Contemporary Art], vol. 2 (Thessaloniki: University Studio Press, 2011), 29–72, 87–144. For the notion of "tradition" in Greek painting and sculpture, see Vakalo Eleni, *I Physiognomia tis Metapolemikis Technis stin Ellada, t.3: o Mythos tis Ellinikotitas [The Physiognomy of Postwar Art in Greece, vol. 3: The Myth of Hellenism]* (Athens: Kedros, 1983); Papanikolaou Miltiadis, *Istoria Technis stin Ellada, zografiki kai gliptiki tou 20ou eona, t.1 [History of Art in Greece: Painting and Sculpture of the 20th Century, vol. 1]* (Athens: ADAM, 1999), 88–91, 130–39.

12 For all these movements in Greek Art, see: Vakalo Eleni, *I Physiognomia tis Metapolemikis Technis stin Ellada, t.2: Expresionismos, Iperrealismos [The physiognomy of Postwar Art in Greece, vol. 2: Expressionism, Surrealism]* (Athens: Kedros, 1982); Kotidis, *Modernismos kai "Paradosi,"* 2:29–39, 87–92; Miltiadis, *Istoria Technis*, 50–67, 93–129.

13 For the spreading of abstraction in Greece: Vakalo Eleni, *I Physiognomia tis Metapolemikis Technis stin Ellada, t.1: Apheresis [The Physiognomy of Postwar Art in Greece, vol. 1: Abstraction]* (Athens: Kedros, 1981); Kotidis, *Modernismos kai "Paradosi,"* 2:96–111; Miltiadis, *Istoria Tehnis*, 50–67, 93–129.

14 Miltiadis, *Istoria Technis*, 236–59.

15 The bilingual exhibition catalog, curated by Bia Papadopoulou, with a selection of works and many theoretical texts reflects this pluralism: Papadopoulou, Bia, ed. *Ta Chronia Tis Amfisvitis, I Techni Tou 70' Stin Ellada, EMST, [The Years of Defiance: The Art of the 1970s in Greece,*



National Museum of Contemporary Art] Athens: National Museum of Contemporary Art, 2005; Kotidis, *Modernismos kai "Paradosi,"* 2:185–99, 257–83.

16 Kotidis, *Modernismos kai "Paradosi,"* 2:203–53, 257–330; Miltiadis, *Istoria Technis*, 260–305, 326–53.

17 Skaltsa Matoula, "To thesmiko plesio ton ikastikon technon stin Ellada ti dekaetia tou '70. [The Institutional Framework of the Visual Arts in Greece in the 1970s.]," in *Mousia 06: Dialexis kai meletes gia tis politismikes spoudes kai tis ikastikes technes [Museums 06: Lectures and Studies on Cultural Studies and Visual Arts]* [Thessaloniki: Ziti, 2012], 118–38.

18 Manos Stefanidis, *Ellinomousion—Exi eones elliniki zografiki [Hellenic Museum—Six Centuries of Greek Painting]*, 2 vols. (Athens: Militos, 2001).

19 Copper Giloth and Lynn Pocock-Williams, "A Selected Chronology of Computer Art: Exhibitions, Publications, and Technology," *Computers and Art* 3, no. 49 (1990): 283–97, <https://doi.org/10.2307/777121>.

20 Frank Popper, "Art, Science, Technology: Six Exhibitions 1966–1998," *Leonardo* 52, no. 2 (April 2019): 194–95, [https://doi.org/10.1162/leon\\_a\\_01163](https://doi.org/10.1162/leon_a_01163).

21 Anastasios Alevizos (1914–1985) was a Greek engraver, etcher and sculptor, who became famous under the name Tassos for his works on significant milestones of the 20th century history of Greece. Thanasis Apartis (1899–1972) was a Greek sculptor. Considered one of the most important representatives of modern sculpture in Greece.

22 Yannis Moralis (1916–2009) was an important Greek visual artist. Spyros Papaloukas (1892–1957) was a preeminent early twentieth-century artist who made a major contribution to the development and renewal of Greek painting. Agenor Asteriadis (1898–1977) was a Greek painter, hagiographer, and engraver. Fotis Zachariou (1909–2001) was a Greek painter, hagiographer, and art restorer.

23 Giannis Chainis, "Omada Technis A [Art Team A]," in *1949–1967 I Ekriktiki Ikosaetia [1949–1967: The Explosive Twenty Years]* (Athens: Society for the Study of Modern Greek Culture and General Education, 2000), 349–52; Elena Hamalidi, "Epilogue," in *Istories sto Metehmio: Modernismos kai pragmatikotita sti metapolemiki elliniki techni [Stories on the Edge: Modernism and Reality in Post-War Greek Art]* (Athens: Melissa, 2022), 310–16.

24 Some of these videos have survived and are in the archive that will be used for the doctoral thesis of one of the two authors of this essay.

25 He used only his first name on the rare occasions when he did sign his works, so in this essay, he will be referred to hereafter as Nestoras.

26 Garidis Anguéliki, "Nestoras: Musicien de l'Image [Nestoras: Musician of the Image]," accessed May 22, 2022, <http://www.artmag.com/techno/nestoras/nestor1.html>. For the spread of abstraction in Greece, see footnote 11.

27 Nestoras Papanikolopoulos, *Nestoras Papanikolopoulos: 'Epilogi apo ti zographiki tou poreia'*

[Nestoras Papanikolopoulos: 'Selections from his Painting Career'] (solo art exhibition, Nees Morphees Gallery, Athens, 1980), <http://dp.iset.gr/en/exhibition/view.html?id=4378&tab=main>.

28 Papanikolopoulos, Nestoras. *Nestoras* (solo art exhibition, Galerie Darial Paris, 1981), October 14 - November 7. Accessed at <http://dp.iset.gr/artist/view.html?id=756>.

29 Theodoros Lekkas, "Public Image and User Communities of the Home Computers in Greece, 1980–1990" (PhD diss., National and Kapodistrian University of Athens, 2014), <http://hdl.handle.net/10442/hedi/47515>.

30 Creating graphics on the BBC Micro, like the computer used by Nestoras, typically required some level of understanding of mathematics and programming. While it was possible to use certain software or tools that provided predefined graphics or allowed for basic drawing without extensive programming knowledge, achieving more advanced or customized graphics often involved coding or mathematical concepts such as coordinates, shapes, and transformations.

31 Brian R. Smith, "Computer Art—Tehni me ilektroniko ipologisti 1960 [Computer Art—Art with Computers 1960]," in *Omades, Kinimata, Tasis tis sinchronis Technis meta to 1945 [Groups, Movements, Trends of Contemporary Art Since 1945]* (Athens: Exandas, 1991), 79–82.

32 This relationship is the subject of Andrew Spira, *The Avant-Garde Icon: Russian Avant-Garde Art and the Icon Painting Tradition* (Aldershot, Hampshire; Burlington, VT: Lund Humphries, 2008).

33 The dot-matrix printer, which was widely used in the 1980s and 1990s, produces characters and images by hitting a ribbon with a series of pins or wires that leave dots on the paper.

34. The term "αυτόφωτος" (autophotos) is defined as "self-illuminating" or "self-luminous," which means it produces its own light. The etymology combines the Greek roots "αὐτό" (auto, self) and "φωτός" (photos, light).

35 In computer programming, *routine* is a general term used for any sequence of code intended to be used repeatedly during an executable program.

36 Nike Frieder, "Georg Nees & Harold Cohen Re: Tracing the Origins of Digital Media," in *Digital Art through the Looking Glass* (Krems Austria: Donau-Universität, 2019), 27–49.

37 In addition to this series of multiple static images, his archive also contains what he referred to as *pseudo-animation*.

38 A. Giavassi, "Art et Ordinateur. Interview du peintre Nestoras," *Bulletin de Liaison de l'I.F.A.* (April 1987).

39 Polyxeni Kasda, *To sinidito mati Antilipsi-Techni-Pliroforiki [The Conscious Eye: Perception, Art, Informatics]* (Athens: Aigokeros, 1988).

40 *Proto Dokumento 1986 [First Document 1986]*, group exhibition, Galerie F, Athens, April 14-19, 1986.

41 <https://epantokrator.gr/en/1854/01/01/st-john-damascene/>, <https://www.elpenor.org/athos/en/e218ab109.asp>

42 Nestoras Papanikolopoulos, *Images informatiques, travail experimental* [solo art exhibition, French Institute Athens, April 18, 1986], <http://dp.iset.gr/exhibition/view.html?id=15009>.

43 Papanikolopoulos, Nestoras. *Painting and Computer Graphics*, solo art exhibition, Galerie F, Athens, November 23-30, 1987.

44 Schwartz, "Computers and the Arts," 11–16; Grant D. Taylor, "Virtual Renaissance," in *When the Machine-Made Art: The Troubled History of Computer Art* (New York: Bloomsbury Academic, 2014), 111–12.

45 Nestoras Papanikolopoulos, "L'Esthetique de l' image numerique et la realité Grecque de 1989 [The Aesthetics of the Digital Image and the Greek Reality of 1989]," in *Computer Image Synthesis and Animation: Proceedings of the 1st Autumn School in Computer Graphics*, 1st ed., edited by Michael Meimaris. Athens: AGRO-UETP University Enterprise Training Parthnership, 1992, 38–43.

46 The creator and president of KSYME was the pioneering composer and architect Yannis Xenakis. Though it was established in 1979, KSYME actually started operating in 1986, with the main objectives of promoting the fields of composition, research, education, and musical events.

47 Nestoras taught the course "Animation Applications" at the Technological Educational Institute of Athens in the Graphic Design Department; he also taught at the Athens School of Fine Arts [1983–1986] in the workshop of

Professor Nikos Kessanlis.

48 Editorial team. "Elektroniki Ipologistes Sto Kentro Meleton Tis Akropoleos [Computers at the Acropolis Research Center]." *Archaialogia [Archeology]* 34, March 1990, p. 116. Accessed April 18, 2024, <https://www.archaialogia.gr/wp-content/uploads/2011/06/34-21.pdf>.

49 Nestoras Papanikolopoulos, "Anazitisis [Searches]," in *Catalog of the 28th Greek Film Festival-Video Art*, ed. Nikos Giannopoulos (Thessaloniki, 1987), National Gallery Archive, Athens.

50 Nestoras Papanikolopoulos, "Psifiaki ikona kai kallitechniki dimiourgia [Digital Image and Artistic Creation]." *Deltio [Bulletin] Association of Electrical and Mechanical Engineers*, 1989, pp. 57-58. Accessed at the National Gallery of Greece archive and Nestoras' archive.

51 Nestoras Papanikolopoulos, "I chrisi ton mikroipologiston sti diadikasia tis kallitehnikis dimiourgias. provlimatismi [The Use of Microcomputers in the Process of Artistic Creation: Reflections]" Presented at the conference on "Applications of Image Analysis and Processing in Science and Art," organized by the Greek-French and Technical Scientific Association, National Research Institute, Athens, 1987. Accessed at the National Gallery of Greece archive.

52 Papanikolopoulos, "L'Esthetique", 38–43.

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1985. doi:10.1007/978-3-642-70259-4\_2.

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