

PIXEL ART AS A VISUAL STIMULUS IN GRAPHIC ARTS

فن البيكسيل كمثير بصري في فنون الجرافيك

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ABSTRACT

Digital and new media arts revolution has been reflected in graphic design, and in visual arts, the impact became clear. Furthermore, in 2021, There are five computer generations known to date. The effect demonstrates nostalgia in the first generation. It uses the output in visual arts. The traditional methods of using the computer, but beyond that, became the forms produced in many visual arts sources, the pixels' values add to the artwork. Hence, then to identify the research problem in Pixel art as a visual stimulus in graphic arts. Through systems that makeup and establish the digital components, images, and configurations of the pixel art and visual arts, the researcher also introduces the technical and scientific aspect that includes an optical element to defining the pixel elements and using them within the image and pixel art equations and how to use. The researcher did a practical pixel art project.

KEYWORDS

Pixel Art, Graphic Arts, Computer Art, Image.

الملخص

أنعكست ثورة فنون الوسائط الرقمية على الفنون البصرية بشكل عام وفنون الجرافيك بشكل خاص فأصبح التأثير واضح للوسائط الرقمية في الفنون كافة. ومع حلول عام ٢٠٢١م تبين ان هناك خمسة أجيال من الحاسب الالى معروفة الي الآن إذ أصبحت الأشكال الفنية المنتجة من خلال الحاسب الالى تأخذ أسلوب الحنين إلى الجيل الأول فظهر العديد من المخرجات الجمالية المتعلقة بفن الحاسوب اعتمد عليه الفنانون كأداة في الأعمال الفنية والذي يطلق عليه (فن البيكسل) ، حيث يضيف هذا الفن العديد من القيم البصرية يتناولها الباحث في هذا البحث . ومن ثم تم تحديد مشكلة البحث في أن فن البيكسل محفز بصري في فنون الجرافيك من خلال الأنظمة التي تقوم بإنشاء المكونات الرقمية والصور التي يعتمد عليها هذا الفن كمخرج للفنون البصرية المعاصرة. طرح الباحث الجانب التقني والعلمي لفن البيكسل لظهور ذلك في مجالات الفنون البصرية كمحفز بصري علاوة على ذلك تجربة عملية كمشروع بحثي تطبيقي يتناولها الباحث كتجربة لفن البيكسل.

الكلمات المفتاحية

فن البيكسل ، فنون الجرافيك ، فن الحاسب الآلي ، الصورة.

PREAMBLE:

The new media always gives the artist a new challenge to use something new and different, representing a goal in the artistic area based on intellectual and visual communication. The researcher tries to find a line between the contemporary media art of pixel art, How to take advantage of the digital elements, their components, and the pixel (digital point places). It comprises all features, images, figures, structural and perceptual characteristics, and their aesthetic impact on Enriching the artistically and aesthetically.

Statement of the Problem:

The research problem is looking for answers to the following question:

- What is the role of pixel art in contemporary arts? How did some skills rely on it? Clarify the history of this art to define the word as a base in modern art history?

Objectives:

- Learn about The History of Pixel Art.
- Find interactive content between Pixel Art and Contemporary Arts.
- Learn about the aesthetic values of Pixel arts and how to use them in an art project.
-

Methodology:

The research follows a Theoretical and Practical framework through four steps.

- **First:** Defining the pixel art (as meaning and history).
- **Second:** The technique methods of Pixel Art.
- **Third:** list of artists using pixel art as a tool in their work.
- **Fourth:** The research's practical framework (the researcher's subjective experience "The Sistine Secrets" installation project.

Analysis:

The researcher has found (4) main ideas about (Pixel art).

List the main idea: One of the ideas is based on “studies done by researchers, they analysis the technique of the pixel art, how can using pixel art through the computer, and how pixel art adds value in graphic art.”

Literature Review:

Pixel Art is a new media art that has been practiced through computer art; that is why many computers and graphic art researchers and scholars worldwide have made their research and studies on different kinds of pixel art a technique. However, these researches mainly focused on the infra using this art, and the researcher could not find any former research that studied the output of this art and the history, methods, and roots. However, the researcher adds the Literature Review of pixel art through four researchers that focused on pixel art.

1. According to (author/Timothy Gerstner, Doug DeCarlo) (Date/2018): the main idea about this subject is Pixelated Image Abstraction. (Berlin Institute of Technology).

The list of facts supports the research idea; the research represents Images in resolution to very low-resolution output with pixel art-style reduced color palettes. Our method is one-on-one and solved to set the features and thumbnail panel needed to create the output image. Results (Timothy Gerstner, Doug DeCarlo) are approximations of results generated by pixel artists. The researcher uses the image in pixel art and develops to add more values by using its artwork.

(<https://www.ub.tu-berlin.de/en/publishing/publish/>).

2. According to (author/Johannes Kopf) (Date/2020): the main idea about this subject is: Depixelizing Pixel Art (Microsoft Research)

A list of facts supports this idea: Labelling them with the algorithm to extract a resolution-independent vector representation from pixel art images amplifies the results by a random amount without image degradation. Our algorithm resolves the features of the input pixel scale. It transforms them into areas of smoothly varying shading separated by smooth contour curves, which support the research to know more about the elements we add to work and learn more steps to add them to the infrastructure of graphic programs. (<http://johanneskopf.de/publications/pixelart/>)

3. According to (author/Radhakrishna Achanta), (Date/2019): the main idea about this subject is: SLIC Superpixels (School of Computer and Communication Sciences) (IC)

List of facts supports this idea: This research shows Superpixels are becoming increasingly popular for computer vision applications. However, few algorithms produce the required number of standard and compressed superpixels with a low computational load. We introduce a new algorithm that combines pixels in the color space and five combined dimensions of an image to create uniform, efficient, nearly uniform superpixels. On the other hand, the researcher tries to collect more data to understand how artists can develop their artworks.

(<https://www.myscience.org/research/universities/switzerland/epfl/epfl-schools-ic>)

4. According to (author/Jianbo Shi, Jitendra Malik), (Date/2000): the main idea about this subject is: Normalized Cuts and Image Segmentation (IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE VOL. 22, NO. 8, AUGUST 2000)

The research proposes a new method for solving the problem of a perceptual congregation in vision. As a diagram incision problem, transformation image division press a new global standard, natural snippet, for graph incision. The predictable cut standard measures both the total difference between several groups and the complete propinquity. It turns out that a productive computational technique based on the general eigenfunction issue can improve this criterion; this research tries to find this efficient computational technique and apply it to some graphic tools the different results are. (<https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=34>)

1. INTRODUCTION

We see pixel art every day; it is part of digital mediums that catalyze the iPhone and Android creation, conveying compact screens based on the pixel. We are used to making icons for Computers and social networks. The most obvious way that Pixel Art connects with audiences is through its connection to earlier times in video/computer gaming history. Like people who grew up playing games in the 80s and 90s, they have an intrinsic value of this aesthetic. For many in this generation, the style taps into warm feelings of nostalgia.

It has emerged as a new media art form in its own right. For example, MoMA has been perspicuous, and there are many enthusiast communities online devoted to this, and many museums host and collect pixel art, which will show in this research.

1.1 The Meaning of Pixel Art:

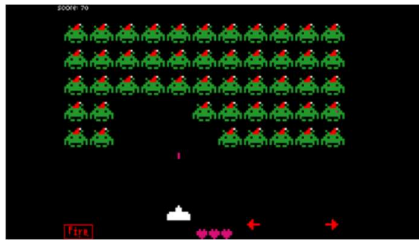
Suppose we mention the meaning term of pixel art backs to Picture Element, which means the tiny little dots made up of the images on desktop displays. The screen is divided into a matrix of thousands or even millions of pixels. The higher the number of pixels, the higher the image looks authentic or accurate.

As a definition of the word (Pix-el), by 1938, photojournalists used the word "pix" around still images. The term "pixel" was first popularised in 1965 by Frederick C, To describe the image elements of the scanned images from space probes to the Moon and Mars.

1.2 History of Pixel Art:

Pixel art existed in the first digital image, and also with the first 2D games with graphics came out. Still, Robert Flegal first published the term and Adele Goldberg of Xerox PARC, which, back in 1982, although the concept existed ten years prior, such as in the Super Paint system created on the desktop by Richard Shoup in 1972 also at Xerox PARC.

First Pixel artists were designers of classic arcade games like Space Invaders (1978) and Pac-Man (1980) and 8-bit consoles such as the Nintendo Entertainment System (1983) and Sega Master System (1985) (Figure1).



(figure 1) Taito, Space Invaders, 1978, United States.
(Source: <https://www.denofgeek.com/games/how-space-invaders-became-a-gaming-phenomenon/>)

The historical part of the definition of pixel art throughout history before defining this word can be traced back to the third millennium BC. The first mosaics appeared in Mesopotamia (Figure 2) or the third century BC and are the oldest tapestries and products in Hellenistic Greece (Figure 3).



(figure 2) A Cave Canem, mosaic from Pompeii, 1st century CE
(Source: <https://i.imgur.com/E8xGjPg.jpg>)



(figure 3) oldest extant European tapestry, the Överhogdal tapestry, 800 and 1100 CE.
(Source: <https://i.imgur.com/OY4kLG6.jpg>)

In 1500 AD, Wampum belts were manufactured by Eastern Woodland tribes in North America. Seashell creations were used as a form of gift exchange and certificates of authority. Europeans later used them to form coins (Figure 4), rather than the neo-impressionist movement founded by Georges Seurat, characterized by dotting and splitting techniques (Figure 5). Many other examples show the beginning styles and endeavors of pixel arts until the late twentieth century and early twenty-first century, appearing in the author's later research.

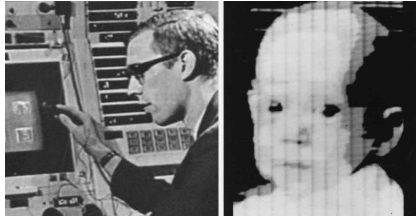


(figure 4) Wampum breeding belts in Six Nations, Ontario
 (Source: <https://www.cbc.ca/radio/unreserve>)

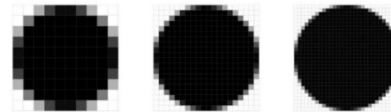


(figure 5) George Seurat, Graphite on Paper, The Metropolitan Museum of Art, New York.
 (Source: <https://www.metmuseum.org/art/collect ion/search/437654>)

In 1957, Russell Kirsch created the first digital photo of his son, measuring 176 x 176 pixels with 1 bit per pixel. Shades of grey were made possible by combining scans conducted at various thresholds (Figure 6), and in 1965 the term “pixel” (picture element) was coined in SPIE Proceedings articles by Fred C. Billingsley of the Affiliated Jet Propulsion Laboratory Caltech. It begins to spread within the field of image processing and video coding. Most of his career was spent developing digital image processing techniques to support US space probes for the Moon, Mars, and other planets (Figure 7).



(figure 6) Russell Kirsch, image of son- 1957.
 (Source: https://www.elespanol.com/omicron/20201231/grandes-perdidat-mundo-tecnologia/547195604_0.html)



(figure 7) Fred C. Billingsley, the term of the pixel is at the heart of the image.
 (Source: <https://mars.nasa.gov/mars2020/spacecraft/instruments/pixl/>)

2. THE PIXEL AS A GRAPHIC TOOL IN VISUAL ART:

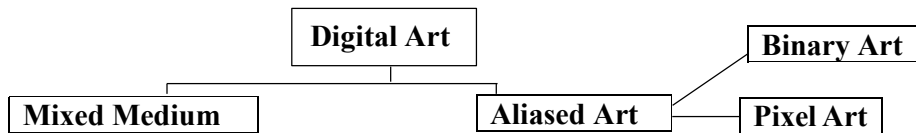
As a unique art style, the pixel based on the complete image's elements back to the distinctive pixel graphics pictures using a limited size and palette and enjoying pixel art is about appreciating the discriminative of the pixel Art.

All graphics displayed on a screen shown in pixels, where the number of pixels limited by a resolution. In particular, the dithering patterns added bold and expressive style to the pictures and provided aspiring artists and designers with a brand-new medium to experiment with freely. The fact that pixel art had never appeared before as a kind of art was a strong incentive to keep it a tool in the artist's hands. As the unique artist has emerged the pixel in their art. here is the willingness to produce the best contemporary art by using computer graphics to create fabulous artwork.

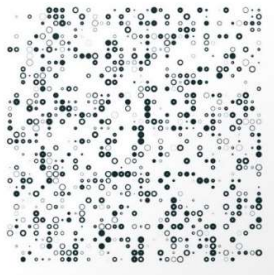
Though not yet considered art, Pixel art was a way for developers to create artwork using limited computer graphics exchequer. As technology progressed with the five computer generations and the yearning for nostalgia of the visual style's magnanimity, artists started to use it in their work.

3. THE PIXEL AS TECHNIQUE:

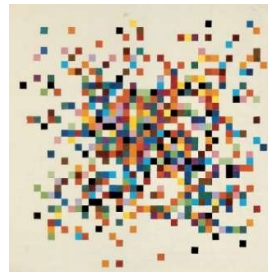
The new art mediums of Pixel art are often confused in digital art through mixed medium and aliased art which means the visual feathering that occurs in an image when the resolution is too low. Anti-aliasing smooths the rough edges of digital images by averaging the pixel colors at the borders. Because they are often used, they are also known as (art made with smooth tools). Smooth out the lines. Alias's art keeps everything divided and sharp.



There are multiple ways to start; The methods are not all that different from pixel art!. but two examples show the difference between (binary art (figure 8), pixel art (figure 9)) Furthermore, Binary Art's reconnoiter of the language binary, which appears at the end of the 20th century, construes the language. It translates it into a new form we can understand; binary art changes the audience to the binary language directly, renouncing a translator's use.



(figure 8) David Mrugala, Digital print, 2008, 50X60cm.
 (Source:<http://www.thinkingmedia.org/david-mrugala%EF%BD%9Cgermany.html>)

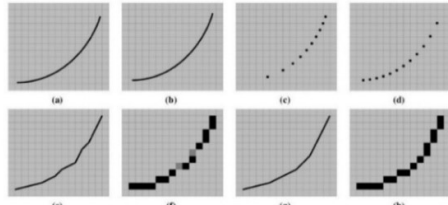


(figure 9) Ellsworth Kelly acrylic on canvas, 1965, 150x150cm
 (Source:<https://www.moma.org/collection/works/37202>)

4. PIXEL ART EQUATIONS:

4.1 Pixel Line:

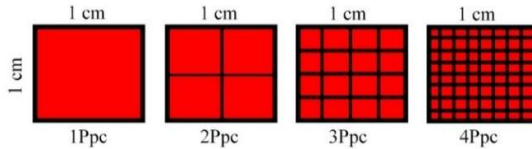
The line example (Adobe CC program) (figure 10) The steps in pixelating a smooth monotonically increasing curve segment are as follows: (a) Place the curve on a pixel grid, (b) Align the endpoints with pixel centers. (c, d) Compute its intersection points with the horizontal and vertical grid lines. (e) Find the polygonal path approximation. (f) If the curve has a monotonic slope, converting segments into pixel spans at this point may result in unwanted jaggies, as shown in red. (g, h) To remove jaggies, sort the elements by slope, then fill in the pixels.



(figure 10) The line example of pixel art.

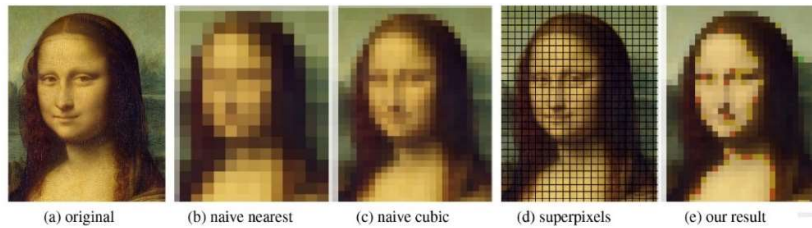
4.2 Pixel Art

Defy and conviction that refers to pixel art as a synthesis tool for artists are the mandatory limitations of the medium. Minimal drawing and the reliability with which the work carefully creates the output of pixel art with the choice of color group and situation of each pixel as such illustrates the final aspect of the image in (Figure 11). A method for creating a digital photo or digital component with the number of pixels per centimeter, where "cm per pixel" is referred to as "Ppc."



(figure 11) Layout a method that is a digital component by the number of pixels

The pixel art images, as an example in (Figure 12), show the simultaneous use of a few pixels and a small color palette, intended to represent the image (a) using (22 to 32) pixels with only eight colors using (b) intimate (c) cubism, Both followed by the average cropped color number, and the result is a loss of detail and noise. Optimizes superpixel array (d) and threaded color palette for pixel art-style output (e).

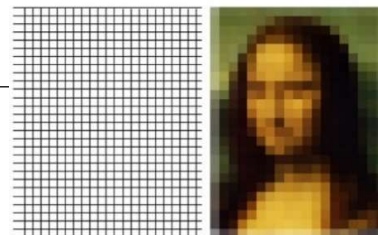


(figure 12) In this shape, the quality of the image is shown in terms of the number of pixels per inch

Therefore, the images are represented as a grid of pixels. We take these pixel networks in single or multiple channels and then apply algorithms to them, such as face detection, recognition, template matching, and even deep learning directly applied to raw pixel intensities.

Let us move here to the (Shi) and (Malik) theory of uniform cuts and image apportionment. We will find methods based on Quick Shift Turbo Pixels and produce standard or spaced sizes with reduced computations that provide very little input. These characteristics make (SLIC) (Simple Linear Repetitive Clustering) a suitable beginning stage for parts of our process (Figure 13).

So, (Shi and Malik) Theory is:



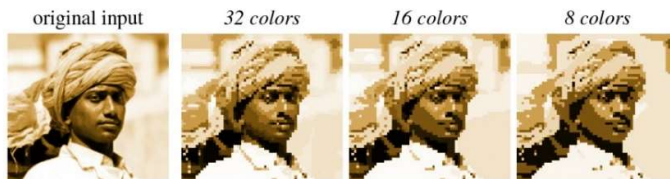
N = number of image pixels.
 K = number of superpixels.
 N/K = Average Area of Superpixels.
 S = N/K Distance between centers.

(figure 13). Example of SLIC.

SLIC (Simple Linear Repetitive Clustering) grinds rule-controlled and dispersed with a low computational burden demanded in hardly any input acquaintances. These specifications make SLIC a reasonable period for pixel descent. We have to mention that contrast means bits in pixel art; 8-bit graphics refer to each pixel's ability to use 8 bits to store the displayed color layers. 8-bit abstract graphics refer to a maximum of 256 displayed colors, 16-bit stands for 65,536 colors, and 34 bits means 16,777,215 colors, all of which are based on the resolution that can be applied in the artwork (mostly 8-bit video games).

4.3 The byte and the bit per pixel in the digital component:

In (Figure 14) demonstration the belongings of the alteration in the grist of colors in the offspring panel (Bite). The practicability offers less color decisiveness than the relative procedure, as the cubic style. As the paten dimension gets minimal, it can preserve the highlights, such as the brown in the tiara, for the best result. The board's function has been improved, but the vision of the eyes has disappeared, and the yellow tone does not decrease in the end; in Table (1), the researcher demonstrates the equation between the number (bit/color) and the file format.



*(figure 14)
bit per pixel in the digital*

Number of Bits	Number of Colors	File Formats
1-bit	2	GIF, PNG
2-bits	4	GIF, PNG
3-bits	8	GIF, PNG
4-bits	16	GIF, PNG, BMP
5-bits	32	GIF, PNG
6-bits	64	GIF, PNG
7-bits	128	GIF, PNG
8-bits	256	GIF, PNG, BMP
24-bits	16.777.216	PNG, JPG, BMP

Table (1), The table shows the relationship between (bit x color = file formats)

5. PIXEL ART THROUGH CONTEMPORARY ART:

Contemporary art and digital computer developed our fine arts. When art was grooved, there are many types and directions from the past until the present, as a component of all the art skills that can no longer well-informed or treated as they used to be. For the last twenty years, the expected significant innovations to the transformation of technique that entire arts affected artists' invention and perhaps even brought about a colossal changer.

Today, years later, we find ourselves in the same condition. Our "concept of art" is, in considerable measure, an example of a variable medium such as the printing industry, being replaced by digital; at the beginning of the twenty-first century, computer technology has revolutionized art, as digital technology has revolutionized printmaking and how some artists are looking at the world. The contemporary art scene addresses critical and authorial approaches, challenging notably white elitist art and political canons, so some artists use pixel art as a tool in their artwork. Here are some examples of artists using pixel art in their work.

5.1 Pixel Installation:

Following are some examples of installation based on pixel art, artist's eye: Devorah Sperber's work, which draws on pixel art, Devorah develops an idea to add pixels in a distinct visual identity, using rollers of string, Sperber creates a hologram, hologram, inverted for a masterpiece (Figure 15).



(figure 15) Devora Sperber - After Van Eyck (Man in Red Turban) (Detail), 2006. 5024 spool of strings, stainless steel ball chain, hanging device, acrylic display ball, and metal stand. Courtesy of the artist - Brooklyn Museum - America.

(Source: <https://www.brooklynmuseum.org/exhibitions/sperber>)

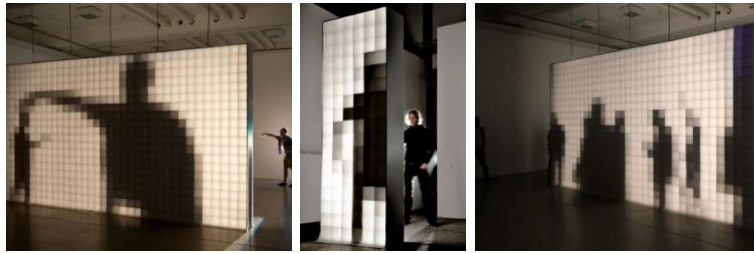
In collaboration with Trafik and composer Michel Ridolfi, Miguel Chevalier presents an interactive installation for the Forum de Hull in Paris (Figure 16). It consists of colorful LED graphics that adorn the tunnel walls, making walking a sensual musical and visual experience. Attractors Estrange cross-pixel synthesis is a virtual, generative, and interactive virtual reality synthesis.



(figure 16) Miguel Chevalier Pixels wave light - 2017 - Installation at FORUM DES HALLES, Paris - France.

(Source: <https://www.urdesignmag.com/design/2017/05/25/miguel-chevalier-pixels-wave-light-2017/>)

With a light fixation, German artist Aram Barthol in a light installation in which the shadows of a pedestrian turn into "pixels". The installation consists of a wall constructed of small square frames covered front and back with tracing paper; A lamp illuminated from a distance breaks the shadows of passers-by into squares, letting a split human figure be seen on the other side of the installation. The screen has a "resolution" of 0.16 PPI (pixels per inch) (Figure 17).



(figure 17) Aram bartholl light installation, 2009, (35 x 100 x 280) cm Materials: MDF 19mm, HDF 3mm, transparent paper, ETC Source Four zoom 25-50° 750W, tripod, dimmer
(Source: <https://arambartholl.com/>)

5.2 Mixed Media and Pixel:

Christian Faure begins all the work by scanning an image to a computer and splitting the image into blocks of color that show him exactly where to place each crayon. It adds elements to every needed space in the artwork (Figure 18).



(figure 18). Christian Faure - Inversion IN (detail left), 2007, Handcrafted Crayons, two panels 44 x 44 cm each.
<https://www.christianfaure.com/crayons/miscellaneous/image6.html>

5.3 Pixel and Digital print:

In this project, Ahmed Al-Shaer uses 8-bit as part of programming computer systems in its infancy; the eight-bit turn is the extreme version of computer scientists designing games in terms of shape where the characters and gameplay elements are designed. As a group of colors, no more than 12 colors, which is a collection of pixels. (Figure 19).



(figure 19) Ahmed El Shaer – 8 bit- Digital print–pixel art – 2012
(Source: www.ahmedalshaer.com)

5.4 Drawing and pixel:

Chuck Close created several elements in the image that diversified from a few hundred to over one hundred. The range of size may range widely in size. Typically, Chuck would mark a grid pattern on an image, and he placed irregular shapes within each pixel. Sometimes he standardized two or more pixels when he wanted to emphasize certain features, such as parts of the nose or eyeglass frames (Figure 20).



(figure 20) Chuck Close - the *Fragmented Image* - 2004 - drawing - 3x100x70cm.- Palo Alto gallery- New York. USA

(Source: <https://www.pacegallery.com/exhibitions/chuck-close-17/>)

5.5 Pixel and sculpture:

By dividing the orca whale into three dimensions - a process that creates a crackling and unexpected feeling in the viewer's mind, Douglas Copeland designs his computer work based on pixel art (Figure 21).



(figure 21) Douglas Coupland - *Digital Orca* 2009- 7x3x4 m- as commissioned by the city of Vancouver, Canada.

(Source : <https://www.vancouverconventioncentre.com/about-us/art-project/digital-orca>)

6. RESEARCHER'S PRACTICAL PROJECT

Cysteine Secrets - Michelangelo's Forbidden Letters in The Heart of The Vatican:

Project description and conceptual analysis: -

An introduction: Regarding the book presented by Benjamin Blesch, the researcher relied on the text and tried to explain a visual text parallel to the text written: "with a contemporary conceptual thought." The idea is after studying the *Sistine Mysteries* book by Benjamin Bleach, *Shocking Mysteries*. Michelangelo's Sistine Chapel shows through a recent rubbing of the Sistine Chapel frescoes that removed layers after layers using thermal lighting over a century of accumulated stains, darkness, and secrets appear in this painting. The *Sistine Secrets* project tries to add more secrets to the artwork by removing centuries of prejudice, censorship, and ignorance that blind us to the truth of one of the world's most popular and beloved art treasures. The researcher here tries to use pixel art to add more curiosity to discover secrets as we used to see Mixed images of hiding pictures in a newspaper or magazine. The *Sistine Secrets* tells a fascinating story of how Michelangelo included messages of brotherhood, tolerance, and freethinking in his paintings that encouraged "fellow travelers" to challenge the oppressive Roman Catholic Church of his day. The researcher here tries to hide the secrets of the artwork

using this technique to add more curiosity about why the Vatican added so many layers to remove Michelangelo's work; He tries to find some styles about art and symbols in this work of art (Figure 22).

6.1 Objectives of the project:

The subjective experience aims to produce contemporary artworks through pixel art to apply as a new medium in installation. The researcher expresses his own identity in return for the subject's collective identity that he follows in this collection of Michael Anglo Artwork through the presented artworks.

6.2 The starting points of the project:

6.2.1 - Intellectual premises:

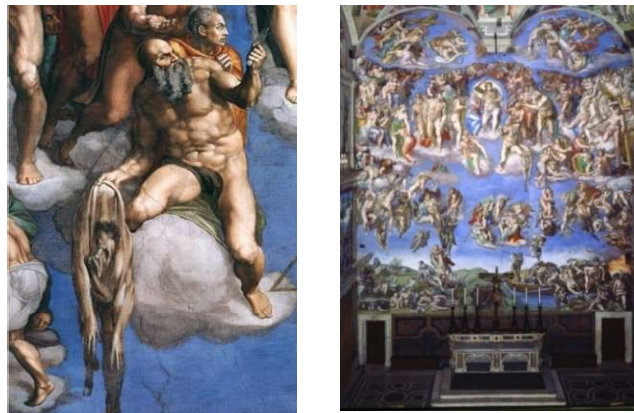
It represents the theoretical study of the research dealt with theoretically in the previous papers, which revealed the most important conceptual and expressive features of pixel art's widespread media arts.

6.2.2- Technical starting points:

The technical approach in the researcher's creativity for his recent artistic work relates to his study in the graphic area so that so pixel art is the medium that the researcher goes through it in this research.

6.2.3 - Components of the project:

The project included artworks that the researcher used the primary subject technique of pixel art and add them to the virtual exhibition show in installation view. The researcher uses the last judgment painting to add a curiosity of pixel to let the viewer think of hiding its images. In

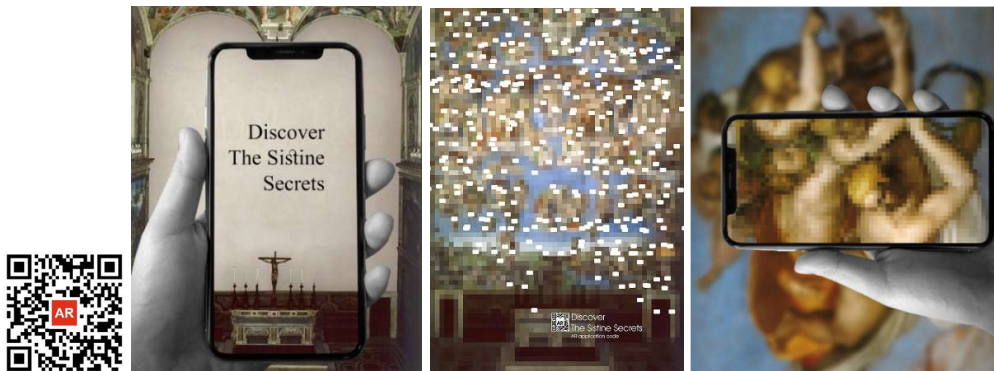


*(figure 22) Michelangelo's last judgment -Fresco 13.7 m × 12 m-(1536–1541) the Sistine Chapel in Vatican City.
(Source:www.artstor.org/2013/11/13/michelangelos-last-judgment-uncensored/)*

(figure 23-24), the researcher adds how the application will remove the painting and add the new pixelated painting.

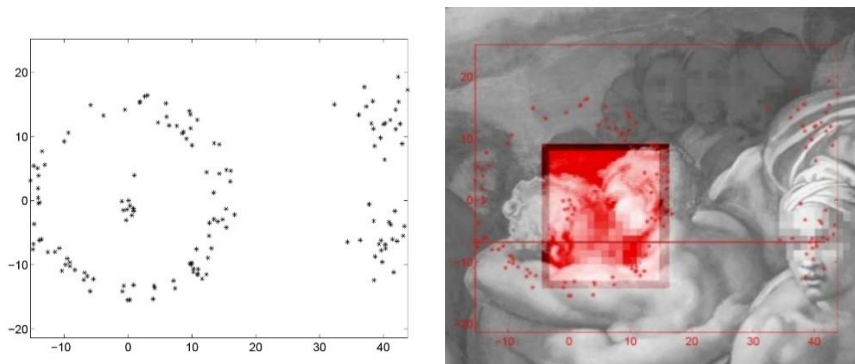


(figure 23) The researcher creates virtual tours with the mobile phone that depend on the screen, where the phone, through the augmented reality feature, ultimately displaced Michelangelo's main work. From left to right, the application shows how to remove the painting. (Source: author)



(figure 24) Face application takes the users on virtual tours with their mobile phones and allows seeing some parts of the painting in pixel art. (Source: author)

The researcher follows in his work (Shi) and (Malik's) theory of the image that carries (the state of the set of points) in the work of the last referee, and pixels can be made through: Determine the positions of the artwork that he will add to the painting (Figure 25). By taking each point in the graph, "the weight at the edge of the graph connecting points, also adds $(N) \times (K)$ the Euclidean distance between the two nodes, $= (NK)$, the spatial proximity scale measures (figure 25).



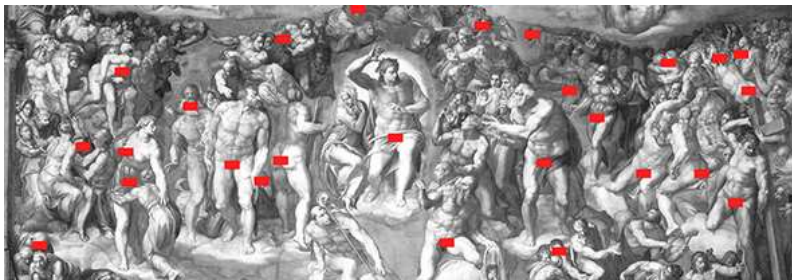
(figure 25) Shi and Malik Theory and proximity in editing image. (Source: author)

With the whole painting, the researcher selects some spots to hide it in pixel to make a new addition of a hiding layer to Michael Angelo's painting based on the book the researcher follows during this project (figure 26).



(figure 26) Examples of spots the researcher selected to apply pixel art left the main painting part on the left after editing. (Source: author)

The final artwork resulting from the presented experiment will consist of several pixel-dependent spots mentioned in Benjamin's book referred to (After Michale Painting) and the secrets of this artwork, where more than 50 spots were placed inside Michelangelo's painting (figure 27). The researcher here returns to inquire about these marks by blurring them through the pixel.



(figure 27) the spots that been mentioned in Benjamin book (Source: author)

Furthermore, through the results of pixelated painting, the audience can select any spot from the fiftieth to know about it in the application; (figure 23/24) explain this part.

7. SUMMARY OF MAJOR FINDINGS:

The overall results showed that pixel art could play an essential role in visual arts and add value to contemporary arts, and there are roots back to before BC that may be the first appearing of the pixel. A high positive effect on the digital environment in graphic arts and Shi and Malik Theory in pixel art images is significant to know this critical role to understand this media. Also, pixel art still needs more application forms that host this media in a new way.

8. RESULTS AND DISCUSSION:

The study aimed to find out the source of pixel art, get the pixel methods to apply in an art project that affects visual arts, and find the relation between some artists and pixel art. Also, analysis of the "Shi" and "Malik" theory showed that through the pixel study, the elements you need to apply the pixel in your also use it in a virtual project show the frame of results work of the research.

9. CONCLUSION

The outcome of this study shows that the implementation of the graphic design Visual Arts program through these points:

- The pixel art brings the contemporary artist to a digital artwork that significantly contributes to developing creativity.
- The artist is the primary driver for interactive tools in contemporary artwork through digital media.
- Should integrating the graphic artist in pixel art to get a new identity of his work.
- The pixel art programs just tools used by the artist to produce subjective artwork.
- Thought and creativity, whatever intellectual approach the artist seeks to achieve through digital media.
- There is a difference in the aesthetic values derived from pixel art.

10. RECOMMENDATIONS:

After working through the paper, the researcher recommended it.

- Offering broader perspectives in theorizing and criticism in reading pixel artwork through technological media.
- The analysis of pixel artwork that relies on technical arts needs to be familiar with those arts
- Create a new media art module in the graphic department.
- The students should study pixel art as graphic techniques to advance modern trends in the artwork.
- Art universities should be holding artistic workshops for contemporary visual arts.

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Web Resources:

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- <http://hamamatsu.magnet.fsu.edu/articles/digitalimagebasics.html> (12-1-2021).
- www.willamette.edu/~gorr/classes/GeneralGraphics/ (2-1-2021).