

Creative coding practices for media artists & designers in Egypt (Challenges, benefits, difficulties)

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Abstract

Programming plays a huge role in the world that surrounds us, and though its uses are often purely functional, there is a growing community of artists who use the language of code as their medium. Creative coding is a type of computer programming. It is used to create live visuals, creating visual art and design, art installations, projections and projection mapping, sound art, advertising, product prototypes, etc.

Media art as had been flourished in Egypt in the nineties of 20th century. Many media artists are trying to identify themselves by new form, and challenging mediums. Hence programing and coding, become passion of young media artists, now there is a growing community of artists in Egypt who use the language of code as their medium. Their work includes everything from computer generated art to elaborate interactive installations, all with the goal of expanding our sense of what is possible with digital tools .

While programming as a medium for art is established, there is still much room for discussion on how creative coding practice may be carried out. In what ways may software development, made conducive to artistic creativity? Are media artists facing challenges in expressing their digital artworks for Egyptian audience? What difficulties they are going through? Does non-profit organizations had a role growing of those artists & designers? Can creative coding change perception of art in art & design faculties? This paper aims to present young media artists, who are dealing with digital aesthetics, and investigate an answer for the questions, which had shown above.

Keywords:

Creative coding, processing, media art, interactivity, Art & design.

ملخص البحث

تلعب البرمجة دورا كبيرا في العلم من حولنا اليوم ، و بالرغم من ان استخداماتها النفعيه ، الا ان هناك تزايدا كبيرا لفنانين استخدموا لغه البرمجة كوسيط لاعمالهم الفنيه ، مصطلح " البرمجة الابداعيه " يشير الي نوع من انواع البرمجة التي تستخدم في الاطار التعبيري و الجمالي للاعمال الفنيه و التصميم الابداعي ابتداء من الصور الحيه ، الفنون البصريه و السمعيه ، و فنون التجهيز في الفراغ ، و فنون العرض و الصوت ، و الاعلان المرثيه في انتاج النماذج الاوليه في التصميم

ازدهرت فنون الميديا في مصر في التسعينيات من القرن العشرين .هناك عدد كبير من الفنانين حاولوا اعاده تعريف انفسهم بوسائط جديده غير مسبوقة ، و اصبحت البرمجة مصدرا لشغف عدد كبير من الفنانين ، خاصه بعد انتشار البرامج المفتوحة او open source ، و تنامي عدد كبير من الفنانين و المصممين الذين عبروا عن انفسهم بالجماليات الرقمييه ، تضمنت اعمالهم جميع اشكال الفنون الرقمييه ابتداء من الصور المعدله رقميا ، انتهاء الي الاعمال المجهزه في الفراغ الرقمييه .

و في ظل تلك المتغيرات تبقى المناقشة مفتوحة حول كيف يمكن للبرمجة الابداعيه تطوير مفهوم و تدنوق الفن في مصر ؟ هل هناك دورا للمنظمات الغير هادفه للربح في تنامي عدد الفنانين و المصممين المستخدمين للبرمجة الابداعيه ؟ كيف يمكن ان تسهم البرمجة الابداعيه في اثراء مفهوم الفن و التصميم في الكليات الاكاديميه ؟ يلقي البحث الضوء علي شباب الفنانين المصريين الذين استخدموا البرمجة الابداعيه كوسيط لهم ،من خلال محاوله الاجابه علي الاسئله السابقه .

من أهم الإشكاليات التي تتبادر إلى الذهن عند محاولة فهم: ماهية العمل الفني التفاعلي؟ هل الفن التفاعلي فن قائم بذاته؟ أو ليست كل الأعمال الفنية تفاعلية؟

اقترح ساكان itsuo sakane⁽¹⁾ أن الفن التفاعلي هو ببساطة الفن الذي يتضمن مشاركة المشاهد. فكل أنواع الفن يمكن أن يطلق عليها تفاعلية إذا ما أخذنا في الاعتبار المشاهدة كنوع من المشاركة، وجاء ذلك كاستجابة لتصريح دوشامب الشهير "إن المشاهد يبدأ في صناعته للصورة"⁽²⁾.

وقد حاول الكاتب بيتر كينج Peter king في مقاله "كل الفنون تفاعلية" إثارة نفس الإشكالية، حيث أشار إلى أن "الفهم understanding" في حد ذاته شكل من أشكال الفن، هو الوسيط الذي من خلاله تتخذ المعرفة طريقها للعقل والتطبيق العملي لكل ما نعرفه، هذا الوسيط من المعرفة يتراكم في عقولنا، ومن خلال الملاحظة وتشكيل الآراء يتخذ هذا الوسيط شكل اللعبة. كما يشير الكاتب إلى أن علينا دائماً أن نتذكر أن سواء كان الفن أثرياً أو معاصراً فهو فن تفاعلي، وأن الطبيعة الأساسية للفن هي التفاعل، وأن الفنان الذي ينكر الجمهور هو فنان غبي وغير مدرك لمصيره، ففي فن الرواد في العصر الحديث أجاب الفنان مارسيل دوشامب Marcel Duchamp عن سؤال "ما هو الفن؟"، وذلك حينما انتزع وظائف بعض الأشياء وتحويلها إلى فن، مثل "المبولة Urinal"، والتي قام بعرضها كعمل فني.⁽³⁾

Introduction

Since the late 1960s, both art and science have flourished. The relationship between art and science is not a matter of the moment. If we follow each of them in their historical context we find that both of them have carried a large number of similar characteristics. (Sommerer, 1998, p. 11). During the later half of the nineteenth century the emphasis on science and especially on natural sciences led to an enormous growth of more specialized sub disciplines. By the late nineteenth century, a series of developments and technical innovations were underway that in the 1940s would serve as the basis of a new theory, which leads to control revolution namely cybernetics. The control revolution produced not only feedback techniques and a new hierarchization of media, but also revolutionized the cultural reproduction forms of society. This included areas like communications and art, since the technologies exercised a direct influence on the forms of sociocultural (re) production. (Giannetti, 2007)

The activity of both art and science has always been the interpretation and recreation of reality. It is an exercise of the human imagination, creating virtual realities, which embody tentative structures of meaning. The world appears to us in the light of these fictions that we

⁽¹⁾ إيتساو ساكان Itsuo Sakane (١٩٣٠-الصبحين)، كاتب وناقد في مجال فنون الميديا والفنون المرتبطة بالعلوم والتكنولوجيا، وله العديد من الإصدارات والمقالات.

⁽²⁾ Rokeby, D. (1998). Transforming Mirrors: subjectivity and control in interactive media. Penny S (Ed), Critical issues in electronic media, state university of New York press, New York. P: 134.

⁽³⁾ F. peter king. (2007). Les Fleurs Du Mal. vol2(1). Art no.01.

project onto its surface and art arbitrates this discourse between reality and illusion. The traditional activity of art has been the representation of reality - the manipulation of materials to create tangible mirrors of our experience and desire. Today the simulation effectiveness of the multi-media and televirtual technologies offers us a new medium of expression and also the cosmography of a new space of visions and visualization. Multimedia telecommunication and networking is heralding a fundamental transformation of our social and cultural paradigms. Tele-virtual-reality has become the appropriate domain for expressing our technological and artistic desires. The new modalities of interactivity, simulation and virtual reality are able to configure an immaterial yet tangible "newfoundland" of forms and images, which we can enter and explore. This fictitious cosmography is searching to constitute those spaces and forms in which it can fully manifest its imaginative orbit. (Shaw, 1998, pp. 162-163)

Changing roles

(Artist- Artwork – Audience)

The experience of art is always active, and in a fundamental sense interactive, consisting of the interplay of environment, perception, and the generation of meaning in the mind of the audience. However, with the advent of computer-based interactivity, a new kind of art experience has come into being. In computer-based interactive artwork, the activity is not only psychological, but also constituted through exchanges that occur materially between a person and an artifact. Audience and machine are working in dialogue to produce a unique artwork for each audience encounter.

As such, interactive installations artworks are at once both object- and experience- based. In the early 1970s, Ernest Edmonds and Stroud Cornock articulated a new concept of the relationship among artist, artifact, and audience in response to the advent of computer-based interactivity in art. They described a dynamic art situation, which they refer to as "the matrix." All the elements of the matrix (the artist, the audience, and the artifact), which Cornock and Edmonds refer to as the "art system," are actively involved in the occurrence of the artwork. Meaning occurs through the process of exchange, and interactivity itself is the very medium of the work.

To begin to understand computer-based art, we must begin to question how interactivity as a medium produces meaning. Lucy Schuman, in her influential book *Plans and Situated Actions*, locates the source of meaning in situated action itself. In so doing, she emphasizes a notion of interactivity in which action is central and goals are emergent. Human actors "achieve" meaning in their encounters with interactive artifact through action. This achievement is rooted in the contingent resources of the context, which are brought into being by the situated action that requires them. As a result, "the significance of artifacts and actions has an essential relationship to their particular, concrete circumstances." Studying the audience experience of interactive art in context is, therefore, of primary importance to understanding interactivity as a medium. (Muller, 2006, p. 148) . In the case of video games, virtual reality systems, and various interactive artworks-for example, Jeffrey Shaw's *Legible City* (1988) and *Revolution* (1990)-even aspects of physical exercise are reintroduced into the human-computer interaction. This "positive," active physical hybridization could, however, be traced to pinball machines and other mechanical coin-operated devices as well." Computer-based interactive systems, however, incorporate innumerable automated functions. As a consequence, different behavioral modes, including that of "waiting," can be included as built-in options of the system (in either hardware or software). (Huhtamo, 1999, p. 107)

Artist has been experimenting with computers for over fifty years and the impact of those early alignments made significant contributions to the visual arts. However early technologically – based artwork was made possible only through concerted efforts between scientist and artists; no mechanism were in place to facilitate the merger of artistic concept and technological tool. Today, advances have renegotiated the relationship between artists and technology. Faster, more powerful computers are accessible to a broader range of artists due to a reduction of cost and an increase in usability. The pervasive electronic technology is providing artists with a new language of expression not characterized by the traditional production of objects, but by time-based, multimedia, interactive creations. (Chmielewski, 1995)

in her book “Digital Currents: Art in the Electronic Age” Margot Lovejoy stated two categories of interaction between artist and computer . In the first category, the computer calculates the routine work, by sorting the color and shape, and classifying the visual information on the object surfaces in the vacuum. Here, the relationship between the computer and the artist is an integral one, where they depend on each other, and both do what one can not accomplish alone. At every step in which the dominant master is the one who monopolizes the decision-making process through acceptance, rejection and modification, he drives and directs the machine to the right path, where programming is used to move in a particular way according to a particular scenario with a set of specific demands containing evidence And the audience, which is designed by the artist, to make tests and modifications to the existing idea.

In the second category, it revolves around the interaction between the artist and the machine. The computer begins to make decisions and produces productions that even the artist can not use. To this level, all possibilities can not be known, in fact the program itself puts those possibilities and then continues to analyze products that can not be predicted at that stage, there can be a redefinition of the relationship between the artist and the machine, where the computer becomes a participant The computer can examine these performances stored in the program file, which is embodied by the artist's preferences. At this creative level the ideal can reach the positive relationship between the artist and the real cooperative machine. (Lovejoy, 2004)

Digital impact & shift toward interactive media

The changing concept of “ visual “

The digital is more than simply a technical term to describe systems and media dependent on electronic computation, just as the analog, which preceded it, describes more than a proportional system of representation. As an example Alexander Graham Bell’s telephone. In this pioneering system, a caller spoke into the phone and a signal was created in direct relation to the sound pressure of the speaker's voice. The transmission voltage, being proportional to this pressure, activated the speaker on the receiver's end to re-create the sound. Or, for another nineteenth-century example, take black- and-white landscape photography. Here was an analog system in which a smooth gradient scale of gray tones was used to capture an image of the exterior world. In both the analog phone call and the analog photo, there is a proportional, continuously variable relationship between the original and the mediated copy (of the voice and of the vista, in these two examples)

Digital systems do not use continuously variable representational relationships. Instead, they translate all input into binary structures of 0s and 1s, which can then be stored, transferred, or manipulated at the level of numbers, or "digits" (so called because etymologically, the word descends from the digits on our hands with which we count out those numbers). Thus a phone call on a digital system will be encoded as a series of these 0s and 1s and sent over the wires as binary information to be reinterpreted as speech on the other end. The digital photograph is perhaps better recast as an electronic photographic. The digital photograph, rather than being a series of tonally continuous pigmented dots, is instead composed from pixels, a grid of cells that have precise numerical attributes associated with them, a series of steps rather than a continuous slope. (Lunenfeld, 1999) , Now how this can hit “ visual “ in art principal, had” visual” concept it changed in computer – based art?

Traditional art after 1945 obscured the relationship between art and science, only the media arts kept the dialogue and the contact with the sciences, because they themselves were based on technology. Under the influence of this new methodological approach between art and science based on technology in the 60s and 70s also the progressive visual arts innovated themselves in relation to the media.

In the 60s painting started again to define itself as a method by defining it to the methods media, in relation, which have constituted themselves as a methodology. The role, which was once played by architecture to force painting into a scientific methodological foundation, was now played by the media. The way the media have changed the material and the place of vitality was something, which could not remain unnoticed by painters who wanted progression. Therefore progressive painting founded its methodologies on the methods of image-construction of the media. So the media and media-related painting had a profound influence on our Western conception of the image.

The primary place of the visual is not any longer the image. This paradox wants to demonstrate that the horizon of the visual is greater than that of the image, provided that we understand as image the classical easel-painting. One of the main consequences for the concept of the visual has been that it was able to detach itself from its historic location, the tableau. Since the invention of photography in 1840, the image is no longer dependent on the canvas and oil paints, or a specific location, rather its location is flexible, it can shift, be transposed, e.g. onto the screen. The visual has become something more universal than the image. The classical image has become a passage of the visual. The visual is wandering through different media. The visual thus has successfully taken possession of new contexts; it has taken over new material, technical, urbane. Cognitive contexts. It is precisely this new kind of interaction with the media, which holds the most fascinating promise and heralds a very open future for the image. (Weibel, 1998, p. 171)

With the separation of the code from the carrier of the message, of the idea behind the picture from the carrier medium, which first became possible when telegraphy was invented, images no longer rely on tableaus for their transmission, but became free to exploit all media as carrier medium. In the 90s, this separation of the message from the message carrier, of the carrier medium from the code has also begun to permeate and diffuse the art of painting. Our concept of the image has shifted, originally associated with the tableau and then with the photograph, it is now associated with TV and computer screens. With this altering association of the image with different carrier media our conceptualization of the image itself has transformed. (Weibel, 1998, p. 172)

Creative Coding

As soon as computers were invented, engineers and artists began to adapt them to display works of art; and as personal computers shipped to homes and businesses, they were also adapted by their owners to display art. These beginnings were remarkably simple. For example, ASCII art turned to advantage a limitation of many early personal computers, which lacked a GUI (Graphical User Interface) and only displayed a set of characters (called the ASCII character set) in a fixed-width typeface. In ASCII art, these text characters are used to render images – sometimes images of text banners and signatures, like graffiti tags. ASCII art has a aficionados, stretches to comics and animation, and falls into several recognizable styles – Amiga, Newskool, and ANSI, for example. Carsten Cumbrowski's Closed Society banner is a Newskool piece which illustrates a characteristic device of ASCII art – the interplay between the image and the choice of text used to render it. The (\$) -sign has a double meaning – it evokes commerce or capitalism and it's also a standard computer programming notation for a variable that can be assigned any value. (Lopes, 2010, p. 4)

Digital codes are made up of discrete and discontinuous elements. Most electronic computers use binary code (represented as zeros and ones). The Wikipedia article about the ENIAC computer built in 1946 at the University of Pennsylvania contains a description and images of the machine, and all of these are ultimately stored and transmitted in the same binary code. However, binary isn't the only digital code. The alphabet is another digital code, and so are Arabic and Roman numerals, traffic signs, and semaphore, to mention a few examples. None of these are binary, but all are digital, since they're made up of discrete and discontinuous elements (such as letters, numerals, conventionalized icons, and ag patterns). And while most digital computers use binary for engineering reasons, it's possible to build computers that operate with other digital codes. What matters here is that each computer deals with all information by formatting it in the same digital code. Digital art includes movies, images, music, stories, and other kinds of art that take advantage of a computer's ability to deal with them in a common, digital code. Emphasize common digital code. Also emphasize: encoded by a computer. (Lopes, 2010, p. 3)

Since around 1945 many programming languages have been developed. **Processing** is not technically a language, but more of a programming environment— what is commonly referred to as an IDE, or integrated development environment. It is now the most popular code language that spread between artist and designer. Processing grew out of research in the Aesthetics + Computation group at the MIT Media Lab in around 2001. Prior to that, John Maeda, the group's famous leader, with the aid of some of his students, developed DBN. DBN was a very simple programming language and environment, begun in around 1999. Casey Reas and Ben Fry also participated in the development of DBN. Processing can be thought of as the very advanced, production-grade child of DBN. DBN was usable on the Web or as a stand-alone application, and was designed to massively simplify the coding process for visual artists. Unlike Processing, DBN didn't have much application outside of the classroom, as the screen output was limited to about 1.5 by 1.5 inches and there was no color. Yet many of the basic processes we expect in a programming language were there, including the ability to set and recall values, create customized commands, and run loops. It even had some basic networking and event behavior (mouse and keyboard detection). (Greenberg, 2007, p. 30)

Media art in Egypt (quick overview)

After the Internet and computers became a big part of our daily life in the late nineties artists started to use digital arts for their contemporary artworks. There has been a fast uprising movement, digitalizing our life and our arts. The contemporary arts scene in Egypt changed a lot the last 20 years and the idea of what artworks and art space can be have changed.

Media art appeared in the Middle East at the beginning of the twenty-first century, especially video art, photography and multimedia installation art. In Egypt, media art was established by the efforts of young artists in the 1990s, who became well known after their previous artworks were exhibited in national exhibitions such as the Youth Salon, the National Exhibition and the Cairo Biennale (1989+). These artists were self-taught and travelled abroad, seeking opportunities to study European and American media art.

They were aware of their need to learn new trends in art education that differed from the teachings of traditional art academies in Egypt. They relied on teaching themselves, and on scholarships or personal connections with in-group exhibitions, to gain a new understanding and a wider vision. Shady Elnoshokaty (2007), in his thesis on media art developments in Egypt, suggests that many factors influence media art and media artists in Egypt, including:

- Structural changes in Egyptian culture and social strata, affected by the tide of globalization and its consequences within the Egyptian economy and commercial market in the beginning of the twenty-first century.
- Increased free learning opportunities provided through the vast spread of digital information, including distance learning, the use of the Internet and software programmes.
- The availability of technological tools and facilities of media art production, plus the home computer and software programmes, the applicability of video and photographic cameras, either analogue or digital, and DVDs, all at affordable prices.

In tune with a changing art market, increased global liberalism and a growing reliance on the use of video, artists from different cultures in the Middle East and in postcolonial countries have been able to explore their cultural identity within a globalized culture. have Arab people and generated a great deal of discussion about the differences between Middle Eastern and western religious culture in terms of liberal modernist ideas, feminism and the freedom of women in the Middle East. These were major issues that international curators were keen to represent in the modern art market.

In Egypt's case, a local political movement led to [a] strong liberal tendency, culturally reflected in the founding of independent art galleries, such as the Contemporary Image Center, the Elgenina Cultural Foundation – institutions that supported many independent artists against official authorities with their old government culture system. (Elnoshokaty 2007: 229)

Media art has flourished recently in Egypt's contemporary art scene. Egyptian media artists tend to experiment with and explore new ideas outside of the cinema industry, and so media

art history in Egypt cannot be compared with media art history in Europe and the United States, which was initially based on explorations in commercial cinema and television in the 1960s, but became a totally isolated experimental form which resisted commercial interests.

Non-profit organizations had a main role growing of artists & designers who is practicing with creative coding, off course there are a lot of trials for independent artists and designer but in our paper we are more concerning to in focus on organization and events that support digital art and creative coding. We are going to present two famous organization and some of its activities as an example for those organizations,

Non-profit organization that supports creative coding practice

1- Medrar for Contemporary Art

Medrar sets the stage for artists seeking to have extensive conversations and collaborations with their peers to develop their purpose as active contemporary artists thus creating a more dynamic and inspired movement. By tapping into this existing collective intelligence, Medrar encourages cooperation, over competition, among artists, locally and internationally, as well as between institutions, critics and technologists to engage and experiment in this rich playground of media arts.

This non-profit collective, running since 2005, achieves this through: hosting festivals, workshops and events to stimulate the scene; providing a collaborative space for media artists; documenting and disseminating audio-visual content on the contemporary art movement in Egypt.

The establishment of Medrar was supported through Young Arab Theater Fund, Foundation for Arts Initiatives, Culture Resource's Abbara Program

One of most creative project that Medrar held was "Open Lab Egypt" project , eight years ago, Open Lab Egypt started its first series of workshops for a diverse group of 34 participants coming from art, design, and education backgrounds. In October and November of 2009, the workshop produced interactive pieces where image, sound, hardware, and software mixed together and were exhibited in Townhouse Gallery.

In June 2012, the collective reinvented it and organized another workshop focusing on the emerging mobile multimedia. We experimented with the use of smart phones and Xbox Kinect in motion detection and computer vision.

Open lab Egypt project exists to counter the prevailing culture that infuses competition and intellectual possessiveness by proposing an alternative lifestyle of collaboration along with inducing willingness and ability to experiment and create.

The nature of digitronic arts is engaging and invites audiences to be part of the process. Open Lab Egypt facilitates the creation of such artworks by local artists through educational workshops and cooperative projects to explore new tools and produce artworks. By using and expanding on the existing networks locally and regionally, Open Lab Egypt is a hive for these artists and technologists to use their community for collective production and buzzing solutions.

Open Lab Egypt is a digital media art collective and group project which allows Participants experiment with new techniques where technology and art intersect and develop interactive

installations. As the name implies, the art pieces which is created and their creation process are open-source and are therefore not confined to gallery spaces.

Family Picture was a part of Open lab Egypt Group project, it was the expression that results from that one puts himself in the center of public image is a view of this experimental work. It is interesting that we see how people tend Enqsoa or increase because of the separation of physical space between them based on their social behavior and the exercise of the fun in their personal lives. Users mixing between different configurations involving layers than they photographed, and then made it possible for others the opportunity to commend the final image of their presence there. It was available for the user to put his image above the other pictures of users like background or that wiped out completely and start from a blank page.

According to one of “ family project “ producer: Ahmed Elshaer¹ : “ the biggest challenge we face as a new media artist is that conditional & formal linking to “ the form “ of art works, as he claimed that most of art schools in Egypt is still teaching with the same methods which engage students to “ form “ of an artwork, not the “ concept “ of the artwork, and that made acceptance of conceptual artworks is generally difficult, not only creative coding artworks” .



Figure 1: Ahmed Elshaer , Family project , 2013, interactive video , ©Ahmed elshaer

Another interactive project produced in “ open lab egypt group project “ was **Vatrine** project I, it was an interactive work on the street, held for 29 days as part of the DCAAF Festival, supported by the Arab Fund for Culture and Arts Afaq. It was held in downtown, cairo in April 2013, project was a cooperation between two artist **Ganzeer** "is a graffiti artist who has been well known during two years following egyptian revolution in 2011, and **Yasmine Elayat**, is an artist who has a particular interest in digital technologies and use of interactive media. The work was held in a real vaterine of an old shop , a screen had a cartoons for public figures those cartoons change every day for a whole month from April 22 until near the end of May 2013, and when the movement of people in front of those figures start moving eyes left and right. The project adopted the technique of tracking the eyes through the kinect .

This work belongs to the category of social political works as it discusses the reality of public figures who had influenced the Egyptian people during the two years following the Egyptian revolution in 2011. The work had public success, because it addressed all the social and cultural levels, felt and manipulated by simple street man , and has raised the sense of play in most of the Marines, said actress Yasmin Ayat that she had seen herself one of the audience

who pass beside the project in the early morning and had He left all things out of his hands to interact with the work and he kept trying to touch the vaterine and moved left and right and said “ there is someone inside , he sees me “ .

Ganzeer relied on the drawings of public figures associated with the Egyptian people in those times such as Bassem Youssef , tv presenter who has been was attacked for his inappropriate words by journalist . his words was considered locally a form of harassment . breaking the border between art and ordinary street man, was the main target of the project where citizens felt that these drawings are very close to thier culture.



Figure 2: Yasmeen Elayat , Ganzeer , *The vaterine* , 2013, interactive street art , ©Yasmeen elayat

2- Fab lab Egypt

Fab Lab is the educational outreach component of MIT's Center for Bits and Atoms (CBA), an extension of its research into digital fabrication and computation. A Fab Lab is a technical prototyping platform for innovation and invention, providing stimulus for local entrepreneurship. A Fab Lab is also a platform for learning and innovation: a place to play, to create, to learn, to mentor, to invent. To be a Fab Lab means connecting to a global community of learners, educators, technologists, researchers, makers and innovators- -a knowledge sharing network that spans 30 countries and 24 time zones. Because all Fab Labs share common tools and processes, the program is building a global network, a distributed laboratory for research and invention

Fab Lab Egypt is a community maker space founded in 2012 by young Egyptians. The lab is a member of the Massachusetts Institute of Technology Fab Lab global network since 2012. It is a digital fabrication lab and a community-run public maker space where anyone can make almost anything, from electronics to furniture and installations. Young children, college students, entrepreneurs and businesses materialize and prototype their ideas in the lab. They can also get together to share knowledge, and collaborate on projects and hands-on activities. We share our machines, tools, skills, resources and ideas with the community to create new opportunities for economic and social benefit Fab lab Egypt is an environment that promotes innovation and education by providing:

- Collaborative open makerspace equipped with digital fabrication and prototyping machines & tools
- Hands-on workshops & training using MIT based curriculum

One of activities that Fab lab offers is a community for coding called “ Creative Coding Cairo”, it is an open community group in Cairo for anyone interested in creative aspects of

computer programming & open source software from Artists, Designers, Programmers, Makers, etc. for art & design practices .The community is open for beginners as well as advanced users, professionals.

Mohamed Hossamⁱⁱ Pointed out to the “the lack of creative coding environment “ in Egypt, as he said it was the motive to build a creative coding Egypt, an open community group in Cairo for anyone interested in creative aspects of computer programming & open source software from Artists, Designers, Programmers, Makers, etc. for art & design practices .The community is open for beginners as well as advanced users, professionals.

Immersion is the latest artwork for Hossam which had won a prize , it is an a projection mapping light installation expressing the immersion into deep thoughts in mind through a generative loop of animated pattern of geometric graphics inspired from the fractals system in nature accompanied by ambient sound in the background. The visuals are generated from coding using processing software and mapped to the 3d structure of the installation and connected with the immersive sound in the background. The project is based on Fractal designs, which rely on an endless self- similar pattern of objects across different scales that are created by repeating a certain process over and over again in a certain loop based on certain mathematical system. It exists in nature everywhere around us like in Trees, Clouds and Rivers.

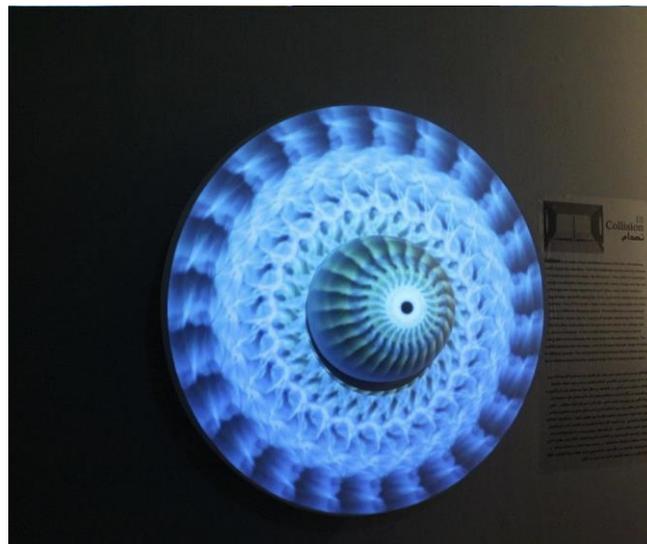


Figure 3: Mohamed Hossam , *Immersion*, 2016, interactive light installation , ©Mohamed Hossam

Digital Art festivals and symposiums in Egypt

Several years ago, Egypt had witnessed an increasing of young artist who explore art through digital aesthetics, beside national art exhibitions like “ youth salon “ and contemporary galleries like Town house, there was a growing need for more events that supports digital arts.

DI-EGY FEST 0.1 2013

DI-EGY Fest was the first Digital arts festival in Egypt which was held From the 27th March to the 10th April 2013, Di-Egy Fest presented different activities for Egyptian and international artists and audience in Cairo. They give audience the chance to see digital arts

exhibitions, projection nights, and visit open studios, attend academic conferences, or participate in one of six different workshops. By presenting digital art pioneers in Egypt and exchanging experience with experts from many countries, young artists gained an awareness of how to shift or digitalize their art practices. This festival aimed to look back and learn from Egyptian art history, identity and to look forward and work further with a better understanding of how art can have a real developing role in developing Egyptian society after digitalizing our life

Trap // 02 was an interactive installation by **Mohamed Shoukry**,ⁱⁱⁱ it conveys the interaction between perception of reality and the perception of the spoken words, putting the people in an irritated position leading them unknowably to their deceivable trap.

People entering a dark room with white stand where they can see a small TV in a horizontal position lightened by a dimmed spot light. People can hear voice in the background come out of the TV. The spoken words were for Egyptians who are living in Egypt is very provocative due its contradictory nature to our living reality. This is the proactive act, which makes people so curious to see the video on the screen; once they come close to the TV they cut a unseen infrared beam that activates a set of laser beams around the spectator imprisoning them. Spectators get stunned and unease. Some even are affected much more that they are afraid to get out as not to get hurt. The project plays on the distraction of the spoken words and perception of reality, which enlarges the effect of walking into trap. Laser beams is activated by infrared sensor that runs for 15 sec and then turns off automatically and activated once more when another person approaches the TV and so on...



Figure 1: Mohamed shoukry , *Trap //2* , 2013, interactive I installation , ©Mohamed shoukry

Cairotronica 2016

Cairotronica is a Symposium of Electronic and New Media arts in Cairo, Egypt. Planned to be held biennially. It includes a program of activities, exhibitions, talks, workshops and screenings by local, regional, and international artists as well as academics, and technology experts. Cairotronica aims to inspire, educate, and challenge students and audiences from across the region.

For two weeks, audiences exposed to the latest in electronic arts , installations in an interactive environment, as well as attend exhibitions, screenings and out-door performances.

Audiences will be invited to attend a three-day academic conference, and to participate in one of the different workshops.

All to encourage participants to improve, re-imagine, and develop unexpected but useful ideas and collaborations, that could lead to spreading awareness and knowledge about the possibilities, challenges and side effects that new digital technologies offer, to creating a new international hub and platform for electronic art in the Middle East.

Cairotronica will function as an incubator for exchanging ideas, concepts, products and services, will bring people together from different industries and fields, encouraging them to create solutions together and will create a bridge between different audiences and professionals to connect through art.

“**Door to Paradise**” By **Sameh Altawil**^{iv} is a virtual Reality Art Project, in which the artist represents a unique and brilliant piece of artistic work entitled “Door to paradise”. Users use a head mounted display in front of a fixed screen where gardens and sound of birds pop up on the screen. “The path scene” appears as one scene of the day of resurrection. User not only watches the scene but also feels that he is part of the scene who walks on the path and witnesses the hell dreads everywhere while the fire flames are directed to him and listens to the yelps of those who are punished. User tries to focus on the faded paradise door, wandering around Conflagrations and fired lands looking forward to ending this nightmare. After a while, user will decide to take the head mounted display off. And finally see the door to paradise on the screen. Sameh Altawil explains, “This work induces astonishment and terror at the same time. As people blindly continues struggling for life needs without realizing that all these trivial issues will fade away. They ignore the real and only fact about life till reality replaces the darkness of their minds. Sameh using a new technology presents this.

This technology depends on the interaction with users; the whole experience differs from the interaction of one user to another. Someone may has the ability to explore the whole experience among the fire flames and yelps of the punished, another one may choose to escape from the terrifying experience taking off the glasses to reach the flash point which is the “Real Fact about Life”.



Figure 5: Sameh eltawil , *Door to paradise* , 2016, virtual reality , ©sameh eltawil

We can sum up difficulties that are facing coders in their practicing Creative coding into some points:

- Teaching engages students to “ form “ of an artwork, not the “ concept “ of the artwork. So student still looks for computer-based art as non-creative artworks.
- Lack of creative coding environment, still the knowing of creative coding as an independent form of art is not familiar in exhibitions, and galleries
- One of the main messages of artworks is to evoke questions, many academics refuses that technology can be one of those questions.

Conclusion

Creative coding is a field that combines art, design and technology. It's is a type of computer programming in which the goal is to create something expressive instead of something functional. It is used to create visual art and design, art installations projections and projection mapping, sound art, advertising, product prototypes, and much more.

We are now witnessing a paradigm shift, which will rewrite Middle East art history, where young artist choose to express their own art freely and attempting to identify them by a new art form. Their works have had considerable impact on the art produced by young artist in Egypt. By accepting media art as a curriculum in art & design faculties, it will form environment for young students to explore new art forms Creative coding is much helpful not only for media artist but for designer as well.

In this paper, we presented a new young media artists and institutions, which are dealing with creative coding. It aimed to help young artist with new concepts and mediums to produce art, in order to improve innovation in the field of art and design.

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ⁱ Born in 1981, Ahmed El Shaer is a multi-disciplinary artist whose practice spans the mediums of installation, photography, sound and video, with a particular interest in digital technologies. His videos combine Machinima, stock footage, 3D animation and experimental soundscapes. His work has been highlighted in numerous exhibitions and festivals, among which: 56th Venice Biennale, "In the Eye of the Thunderstorm" Collateral Event, Curated by: Martina Cornati, Venice, Italy. "*Experiments in Arab Cinema*" at (Simon Fraser University) "SFU", Vancouver, Canada, 2013 and (Rochester University) New York, USA, 2014.

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ⁱⁱⁱ Egyptian contemporary Media artist. Born 1976 in Cairo, Egypt, His art revolves around new media, society and politic. Studied Art in Egypt, and had his PHD from faculty of applied arts, 2010, his works looks for connections that can be made between the natural world and the unseen reality that underpins it. Exploring emotions and perceptions of the society that shapes our visual culture.

^{iv} Egyptian contemporary Media artist / researcher and Creative director. Born 1978 in Cairo, Egypt, His art revolves around new media, society and politic. Studied Art in Germany, Austria and Egypt