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Faked Programmed Digital Art as Museum Project?

Software is developing faster than any other previous innovations, and software art ('softwarekunst') becomes a museum object much earlier than all previous art forms

by Reiner Schneeberger

It took 500 years for Leonardo da Vinci. For computer art it needs less than 50 years. "Wonder machines self-made: World premiere with Leonardo da Vinci" was the headline when in 2010 the model kit manufacturer Revell released a total of 10 machines of the great inventor for hobby modellers. Put the parts together by your own hands is the mission of these construction kits. Prof. Dr. Horst Langer from University of Applied Science Bielefeld states: *»We see in Leonardo an engineer who lived 500 years ago. But behind the scene we notice that all his ideas, concepts, constructions and visions are still of high importance today. And there is this specific attraction: there is nothing old-fashioned, but it appears still modern, and you even can find orientation and generate your own visions for the future.«*¹⁾

Digital Art recoded

The intentions of the authors of ReCode project are very similar²⁾. Digital Art is rebuilt there. Quite a few works of computer art from the seventies have been transferred into Processing, a visual programming language. Now the results of these recodings are online available at <http://recodeproject.com> as *»direct translations«*. However, viewing these artworks on screens of latest technology, in high resolution and in brilliance fresh looking does not actually revive the work of those old masters of computer art such as Georg Nees, Manfred Mohr, Frieder Nake, A. Michael Noll and Herbert W. Franke. It is more the concept, the topology behind which stimulates our interest. For this aim, an implementation in ReCode mode as *»experimental translation«* is necessary. This enables the website visitors to play with their own creative capabilities.

In case that a programmer like Golan Levin³⁾ makes the effort to study preserved sources, a recoding allows to experience the potential of the work intended by the original artist again. Nonetheless, deviations in the viewing experience cannot be completely avoided due to the usage of different output media in past times (plotters, drawing tables) and nowadays (inkjet, laser printers, flat screens). When the creator has not published the code with the work itself, it remains some space for interpretation. Golan Levin describes this for the artwork *»P145 - Phase Pattern«* by Manfred Mohr: *»Mohr does not specify which '3rd degree spline' he used for his curves, nor how they were randomized. For the sake of brevity and clarity, I have selected Processing's noise() function for this purpose, as it implements Perlin's noise function with 3rd-order continuities. Technically, however, this choice should be regarded as an anachronism, as Perlin's noise was not published until 1984. This is a bit like seeing a new font employed in a period-piece movie about the past: a telltale giveaway that it's a re-creation.«*

Some creators are still alive and don't have any clue about what is done to them for good. The question of plagiarism rises in case you turn the view. The developed ReCode software is protected by an open source license (OSI/MIT). Therefore everyone can deliberately treat the code, of course on own risks. Aren't then the ReCode artworks which are online creatable by everyone rip-offs of the originals? Naturally, there is no intention to deceive in the ReCode project. So let's relax for now. All computer graphics made before 1980 are now focused for collection and conservation in museums, hence it is art. And who of the old masters wouldn't be full of joy to receive confirmation for that now, what earlier wasn't yet commonly appreciated? With computers you can make art, just as with cameras.

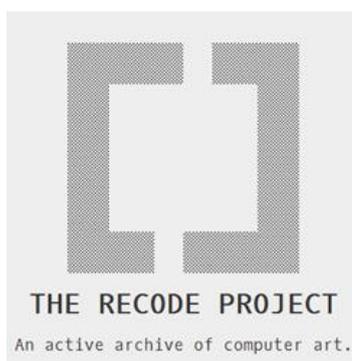
Photo art

There is a strong connection between Camera and Computer: Works that have been shown in Gallery 291 in New York, founded in 1905, are meanwhile doubtlessly regarded as art. The Photo-Secession was the impulse of this time. The founder of this gallery, Alfred Stieglitz, declares in 1912: *»The Photo-Secession is an idea. It is the idea of revolt against all authority in art, in fact against all authority in everything, for art is only the expression of life.«*⁴⁾ Michael Richter, photographer and blogger, answers the question *»When becomes photography art?«* this way: *»Artworks are evidences for a person's changes. Art is the process of change. Artists are aware of this and reflectively changing beings.«*⁵⁾

What Gallery 291 means for photography, are the computer art competitions in the seventies as well as the Computer Graphics and Art magazine edited by Prof. Grace C. Hertlein and published in the years 1976-1978.⁶⁾ The latter has captured the particular interest of the ReCode project. The issues of the magazine have been scanned.⁷⁾ All pictures published there are tasks for *»translations«*. Every programmer who wants to try a *translation* of these pictures is invited to do so. Just start and have fun! This approach is stunning but also quite unconcernedly regarding still valid copyrights.

ReCode project

A view on the mission statement shows the museal intention:



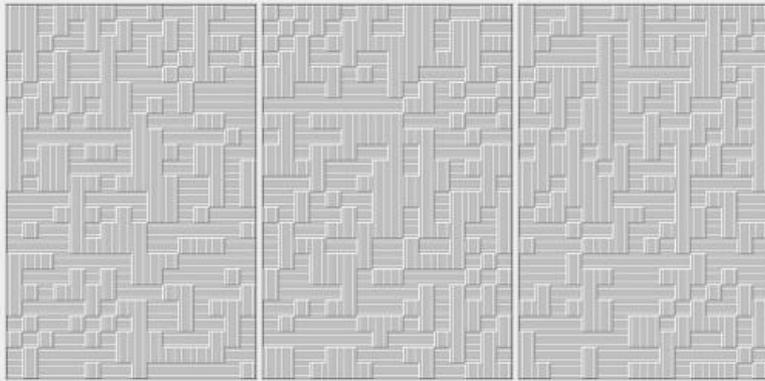
THE RECODE PROJECT - An active archive of computer art.
The ReCode Project is a community-driven effort to preserve computer art by translating it into a modern programming language (Processing). Every translated work will be available to the public to learn from, share, and build on.
The project's main goals are:

- 1. Bring pioneering works of computational art back into circulation.*
- 2. Offer a learning resource to contemporary practitioners and educators.*
- 3. Create an active community.*

Project ReCode brings the pictures once published as artworks in Computer Graphics and Art back to the public as a reprogrammed code free to use. Processing is the tool for it. A programming language well made for software art (in German: Softwarekunst).

But what does software art actually means? In short: *»Digitally created art becomes software art when it is generated by means of a program and the code design of the software as well as its result are integral parts of its esthetics.«*⁸⁾ In other words: Not only the resulting picture is the deciding part, but also the structure and elegance of the art work which inspires to take part in it⁹⁾.

To show in detail how ReCode works and which dilemma the conservation of Digital Art might occur when recoding is neither done nor commissioned by the artist himself, an example could help. To avoid any legal discussions, I choose a picture based on some square-structures named SNE KAO that I have published in 1978 in Computer Graphics and Art.



Click to see examples in good quality:

http://www.heise.de/tp/bild/38/38864/38864_11.html

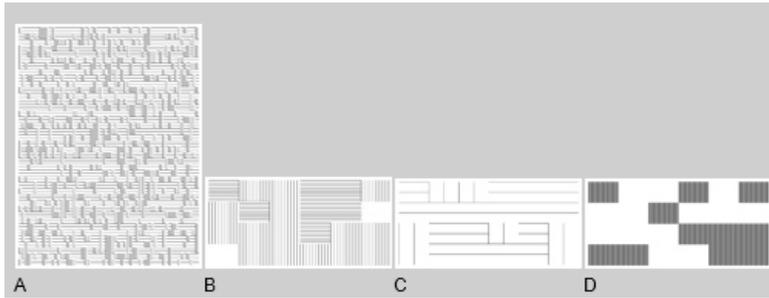
http://www.heise.de/tp/bild/38/38864/38864_12.html

http://www.heise.de/tp/bild/38/38864/38864_13.html

Fig. 1: Experimental Aesthetics, „untitled No. 4” (left), in Computer Graphics and Art, Vol. 3, No. 2, 1978. Next to it (middle, right) two direct translations by Jon Bobrow, 2012. A random generator decides about the sequence of the squares.

These pictures and many other design experiments which became known under the collective name SNE ART¹⁰⁾ were developed to comply with the requirements of the head of the department of art education at the University of Munich, Prof. Hans Daucher. He said to me: “In case the students continue to take part in your seminar after the second lesson, you have the job”. At this time, I was 19 years old (1976) and I understood that both I have to make it easy for the students and to keep the course exciting. Every student should be able to create something valuable, naturally without the need to learn programming. They were art education students, so that an approach to this topic via algorithms and math would surely have caused a fast exodus out of this seminar. Neither home computers nor personal computers have existed these days.¹¹⁾ It was the time of mainframes, computing centers, punch card readers and batch operation. After submitting the punch cards with the program, it took hours or even days to get the result. This situation has brought me to the idea for art projects to use a parameter-based data input which could be performed at will by the respective student. Spoken in modern terms, the students became users of an art machine. Computer Art based on parameter settings was born. The student chooses the value for each parameter and the program works it out and delivers the artwork on paper. The output of the works carried out through pencil on paper. These drawings were called plots.

The parameters which had to be submitted from the user to a certain program module were specified in SNE KAO as follows: Size and numbers of elements (boxes) in x- and y-axis, numbers of lines within a box and a value for dispersing horizontal and vertical boxes. In case the sum of horizontal and vertical was lower than 100, “holes” in the artwork became visible. (Fig. 2: SNE KAO parameters)



Click for:

A:

http://www.heise.de/tp/bild/38/38864/38864_1.html

B:

http://www.heise.de/tp/bild/38/38864/38864_2.html

C:

http://www.heise.de/tp/bild/38/38864/38864_3.html

D:

http://www.heise.de/tp/bild/38/38864/38864_4.html

	A	B	C	D
			Picture A	Picture B
			Picture C	Picture D
Number of horizontal boxes (x):	40	6	6	6
Number of vertical boxes (y):	60	4	4	4
Length of a box in x:	10	100	100	100
Length of a box in y:	20	70	70	70
Number of lines in a box:	2	10	2	50
Percentage of horizontal boxes:	70	30	40	0
Percentage of vertical boxes:	30	60	60	50

Fig. 2: Computergrafik. Ein Lehr- und Lernbuch, L. Limbeck, R. Schneeberger (1979), SNEKAO, page 131ff.

The design of my "parameters art" system cannot be recognised at first glance when looking at a few images created by SNE KAO. Only a look in the parameter table reveals the concept behind (Fig. 2). However, even then the distribution of horizontal and vertical boxes controlled by a random process remains undetermined. This is because random processes play a major role in SNE KAO¹²⁾.

Limits of Recoding

Multiple problems may occur when attempting to revive old software. Only if the coders are still active and the architecture has been completely recorded and conserved or in case the code (including the source code) is still running on a computer, a re-coding can be successfully performed. But even when everything looks fine, it can fail. This happened with »Mondrian« by Herbert W. Franke. In 1979, Franke has created the first interactive art machine on a Texas Instruments TI 99/4 home computer. He named the software »Mondrian«. This TI 99/4 was equipped with color graphics and sound output. Referring to old diagrams and instructions by Herbert W. Franke, a tedious re-coding by using the Delphi language has been performed for Windows XP in 2008. But the sound did not work as intended. The person programming the TI 99/4 did not copy the original sound files like instructed by Franke so the result in the recoded Mondrian has sounded totally different. This means that Mondrian can only be experienced in original on a TI 99/4 whilst the reborn Mondrian from 1979 operating systems has to remain silent under Windows.¹³⁾

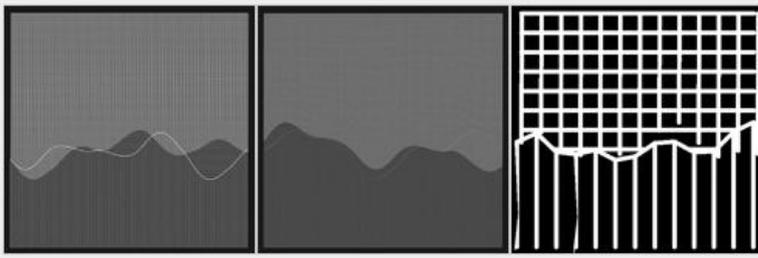
It is understandable that it is not easy for the Recode project members, let's call them translators, programmers or re-maker, to empathise themselves with an artist from 1976/78. The re-maker only looks at the picture in Computer Graphics and Art, if there is not more information given on the genesis in the magazine or at some other places. The artist could have had all sorts of ideas by performing the artwork. For a person coming from outside it is like to read tea leaves. Even when there are more works published in a series, one can get a wrong idea of the whole thing. And indeed exactly this has happened. In the mode »*experimental translation*« it is possible to edit the code that a re-maker has written. This is utterly easy in the Recode project. Just do some changes on lines that the re-maker has predefined and experiment with different values. As a creator of the newly generated pictures you can quickly proof if the parameters comply with the former intentions or not. At least I can see this on the pictures made by myself and published in the magazine. Though the translations are awesome, the result is nonetheless disastrous. It is obvious that playing with parameters may bring up a totally different output which has not much in common with my art machine in the past. Some of the students' works are published in art magazines or displayed in galleries or museums. Even prizes have been granted to them in international computer art competitions.¹⁴⁾

Legal Limbo

The result that Recode project produces is art. But who is the creator of this art? There are patents on software. Even without a patent, Software is protected by copyright. Should I send the re-maker a written warning? Should I send the person my coding of the good old times in FORTRAN so it can be done now similar in Processing?

It gets even more adventurous. In Recode project, there are some pictures looking quite similar to the ones I made, also published in Computer Graphic and Art. Re-makers are working on them, too. Around two dozens of re-makers are currently participating around the globe in the Recode project. Of course, the result may look completely different. By changing just a few values in Processing, a code can lead to results which – like in my case – eventually even match much better with my requirements from the past. Should I prefer now one of these modern implementations though knowing that once a different artist has created the original archetype for this? Should I get in contact to this re-maker and ask for upload this new code to my work as a second or alternative recode?

In the recode mode »*experimental translation*«, most recodes of old computer artworks allow a very wide genesis of pictures. Results never planned by the artist are now embedded in the new coding. This time I take the work "P145 – Phase Pattern" by Manfred Mohr and the *experimental translation* by Golan Levin. I edited the parameter `>> nLinesAcross = 133; // = Number of lines across, counted per original <<`. I change "133" to 1330, and then to 13 (Fig. 3).



Click to see in good quality:

http://www.heise.de/tp/bild/38/38864/38864_21.html

http://www.heise.de/tp/bild/38/38864/38864_22.html

http://www.heise.de/tp/bild/38/38864/38864_23.html

Fig. 3: P145 Phase Pattern original (Mohr) and variations (ReCode: experimental translation)

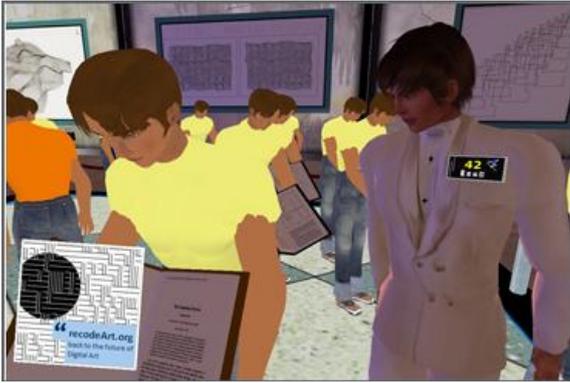
Can all the ones I made still be considered as being original art works by Manfred Mohr? One, two values of a variable in the code changed and another art work is generated from the same code. Had Mohr this really in mind? As far as I can judge it, Mohr is not a fellow of “parameter art”. Also he is not working in the tradition of Georg Nees’ “generative computer art” (generative Computerkunst)¹⁵⁾. Does Mohr actually agree with the changing of values in his work? Can his description of the work process be understood as an instruction and a charter to create similar artworks of this kind? A visual connection between the works coming out by using this recode cannot be seen when the values are not close to the original values in P145 – Phase Pattern. Only after studying the code, you may call it a “rip-off”. What might happen if the values are changed in a program loop and then a video would be made of it?

Conserving Digital Art raises some questions. The theme promises to get more triggering in time and crosses a bunch of fields: Informatics, design, law, art and politics. The beginning is experimental and in fledgling stages. Just the opposite happens in the area of games. Many games, created on hardware that does not exist any longer, are coded freshly for gamepads, consoles or smartphones. Some run by using emulators for old operating systems, often using Windows or Linux as a platform. This way, the old games can be still experienced. The original creators have been asked and legal agreements have been set up. It is worth to take a look at Tetris created by Alexei Paschitnow in 1984. Many years of legal fights for markets and platforms are recorded. In 2012, Tetris was eventually honoured by the Museum of Modern Art in New York. The criteria for selection are noted this way: “... not only the visual quality and aesthetic experience of each game, but also the many other aspects — from the elegance of the code to the design of the player’s behavior — that pertain to interaction design.”¹⁶⁾

Up to these days, digital Art of the seventies is not yet conserved very often. The Recode project makes a step forward and hopefully the initiators don’t get in trouble with some artists or their successors affected by the recoding. On the other hand I don’t think this can be a way to conserve software art of the eighties and nineties. Digital Art requires a conservation of the code from the very beginning, not only of the picture as the result. This is something to learn from the Recode project. Every artist should be aware: Without the code as a part of the artwork, it will become difficult to claim later: “This is my artwork, an artefact of my earlier creative periods!”

Recode from 1976 to 2013

It’s a lucky situation that the software package SNE ART, developed in 1976 at the department of art education at the University of Munich, was licensed to the University of Applied Science Bielefeld, Department of Design in 1982. The person in charge, Dietrich M. Scheringer, has still the code in hand that he implemented in Bielefeld. He took the Recode project as an impulse to start a project to bring SNE ART back to life using the tools of the Recode Project. Currently he recodes the two-dimensional modules in Processing to make them available for an online use. It has the title Recode MARION and will be available in the internet at <http://recodeart.com>¹⁷⁾. However, the module SNE PER which performs projections within SNE ART by setting up a camera position and an angle for viewing 2D-artworks will not be reengineered by Dietrich M. Scheringer. The reason to skip such an effort is that it is meanwhile easy for everyone to import self-made pictures in accessible 3D-environments. This brings old and new art together, makes old and new visual designs perceptible and offers the visitor a real experience. Avatars, self created by prims in 3D¹⁸⁾, can enter virtual rooms and experience artworks which are already became part of art history (Fig. 4).



Click to see in good quality:

http://www.heise.de/tp/bild/38/38864/38864_8.html

Fig. 4: Clone of Zuse. Displayed on the walls are works by Reiner Schneeberger (1978) – now Kunsthalle Bremen

They discuss, they reflect, they are seen, their doing is recorded, photos are taken and videos made. They sell and buy Digital Art of the seventies, mostly geometric patterns and structures based on lines. These artworks point just at nothing but themselves. They don't mirror any external influence. They are concrete art. They tell the visitor: "I am here, more I don't have" (Georg Nees). At this time, some of the buyers might recognise that they will themselves be seen as the first that have gone this way and so become art by themselves: avatar art (Avatarkunst), "I in 3D" or whatever we might call it then. A symbiosis of technical development par excellence: Everything in Digital Art which is destined to survive the times requires a Recode.

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Readers are invited to send artworks they made by using one of the recordings at <http://recodeproject.com>. All works received will be presented in a 3D environment and be shown in 25 years. Then it's time for a retrospective of the first Recode in Digital Art. *)

*) just send a copy of the code you used. This is easy to do: In windows, use right mouse-key "select all" (CTRL+A) and "copy" (CTRL+C) and copy the code to an editor or a text program with "insert" (CTRL+V). The picture itself is not required. You will get a copy of the picture for double-check we made by using your code.

Footnotes:

- 1) From: Info TV Leipzig: „Wundermaschinen selber bauen“ – report by Media Porta, 22.09.2010.
- 2) recodeproject.com – The Recode Project. An active archive of computer art. Recode Project uses material online provided by Prof. Dr. Frieder Nake, *Kompetenzzentrum (frühe) digitale Kunst (compArt)* at the University Bremen see <http://dada.compart-bremen.de>
- 3) Golan Levin about Manfred Mohr, P145 - Phase Pattern: "The algorithm as described by Manfred Mohr at: http://www.emohr.com/sc69-73/vfile_145.html: "Two horizontally oriented curves are created from randomly chosen points fit with a 3rd degree spline function. One curve is oriented the same in both drawings having the space below it filled with parallel vertical lines and the space above with parallel horizontal lines. The second curve has only parallel vertical lines in the space above it in the first drawing and is flipped in the second drawing so that the parallel vertical lines are on the bottom."
- 4) Wikipedia: Galerie 291
- 5) Wann ist Fotografie Kunst? Blog Lichtmaschinenkunst by Michael Richter at <http://mir52.wordpress.com/2010/02/04/wann-ist-fotografie-kunst/>
- 6) In 1979, first international competition of computer art by Gesellschaft für Computergrafik und Computerkunst e.V., München. The competition provided an overview of the computer art at these times. Also the entries helped to structure computer art to set up an early catalogue; see: <http://www.cowo.de/a/1192148>
- 7) The issue Computer Graphics and Art, Vol 1., No. 1 is not yet available again till now. The scans start with Vol 1. No. 2, May 1976.
- 8) Reiner Schneeberger, in <http://softwarekunst.de> (2009)
- 9) Algorithmic Revolution. On the History of Interactive Art (2004) Peter Weibel, Dominika Szope, Katrin Kaschadt, Margit Rosen, Sabine Himmelsbach: „... Software art, representing the triumph of algorithmic art and the up-to-date practice of media art, has a presentation area of its own; the same applies to algorithmic net art and the latest explorations into algorithmic literature and acousmatic music.“ http://www01.zkm.de/algorithmische-revolution/index.php?module=pagemaster&PAGE_user_op=view_page&PAGE_id=118
- 10) SNE ART, also published als SNE COMP ART, generates graphics by using values the user sets and uses random numbers as well as a part of the generation. As colors on screens come up in the early 80th the so made structures got a “filling” by colors. This way the Computer Minimal Art was born. <http://dada.compart-bremen.de/node/4608>
- 11) Starting about in the year 1981 the word „personal computer“ is used. IBM managed to monopolise this word. Before this the term home computer was used. Microsoft Windows for IBM-PCs came on market in 1985. Windows made „the mouse“ to become the new input device.
- 12) To understand a computer generated random process just have a look at the Brownian movement. More at http://recodeart.files.wordpress.com/2013/03/kunstinformatik_generative_computergrafik1.pdf
- 13) more at <http://mondrian1979.wordpress.com>
- 14) Robert Stoiber, one of the winners of the CW-Computergrafik competition 1984 for a work made with SNE ART. Published also in *Graphic Design Education* by Igildo G. Biesele (1981). <http://www.cowo.de/a/1172447>
- 15) Georg Nees, *Generative Computergrafik*, Siemens Verlag, 1969; 2. print 2006
- 16) Wikipedia: <http://de.wikipedia.org/wiki/Tetris> and http://www.moma.org/explore/inside_out/2012/11/29/video-games-14-in-the-collection-for-starters
- 17) At <http://marion.recodeart.com> you find a timeline of MARION at the University of Bielefeld, Department of Design and at <http://scheringer.recodeart.com> some information about the status of the recoding of SNE ART in Processing.
- 18) Prims are the basic elements in 3D-worlds. More at Reiner Schneeberger, *The Primcurator*, in *MUSEUM AKTUELL*, September 2011, p. 32-35.