

In the beginning(s) was the digital image.

WHY DIGITAL PRINTS MATTER

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It has been established that “computer art” started approximately in 1950 with Ben Laposky’s oscilloscope images which he generated with analogue electronics and then recorded onto high speed film. This event occurred in wake of the then recent developments of the first electronic digital computers. These being a machine built by John Atanasoff and Clifford Berry in 1941 and then the well known Electronic Numerical Integrator and Computer (ENIAC) – the first major general purpose computer, introduced in 1946. Completed in 1951 the Whirlwind Computer – was the very first to be equipped with a (vector scope) video display monitor. A “bouncing ball” animation was actually produced to demo this feature.

Taking Laposky’s work as a starting point, this makes this art form about 53 years old. This phenomenal computer-based art movement has now come to be popularly identified as digital art. The current mainstream incarnation called *new media* is in fact a subset of digital art.

It’s important of recall that there was a lot of key art work produced in this movement, in its formative stages. That is to say, works created during a time-frame spanning up to 26 years before the Apple II was introduced; 30 years before the first IBM PC; 32 years before the adoption of TCP/IP protocol for ARPANET; at least 38 years before the development of HTML; 42 years before the first WWW graphical browser (Mosaic, 1993) and 44 years before the DVD was announced as an industry standard. This is a very long time in computer years.

In the last decade, I have seen a large emphasis put on the fact that new media uses digital technologies as a platform for interactive engagement with its viewer – the viewer becomes a participant, in a sense. Perhaps this is the contemporary embodiment of Marcel Duchamp’s notion that the viewer completes a work of art. Fair enough, while this is quite exciting and important – that is the creation of tech-laced phenomenological tableau or something “post-object” and process-based; I would submit that this is not the only contemporary (digital) art that matters.

It is important to note that digital print work, for the most part, is in fact created in a dynamic time-based interactive software-hardware environment. A profound cybernetic interactive engagement does take place toward the completion of a work, but in this case the artist “straps it on.” It’s somewhat analogous to the contrast between browser-side and server-side programming in modern website architecture. It’s a technological intervention with blood-robot wet-ware and body kinesthetic processes, at some point along the

interface or workflow. It is digital. *Digital* as we mean it today –100 years from now it may mean the same, but it most likely will connote something quite different.

Even if the software of choice is off-the-shelf – it functions to adapt and articulate the general purpose hardware component of the art-making tool in use (or perhaps the term should be instrument – as in musical instrument), so that the artist can make art with it. To take the musical metaphor further, an off-the-shelf “tool” like the trumpet did not limit the evolutionary expanse of the Jazz idiom as can be heard in its development through the work of Louis Armstrong and onto that of Miles Davis. Of course Miles did bring electronics into the equation after a while, but hey, some artists love technology.

It may be obvious but let me clarify what digital print work, I’m talking about. I’m not including, output sourced from digitized trad-media like painting, drawing or film-based photography in an attempt to reproduce the original. I am referring to work that utilizes digital imaging technologies in a way that is intrinsically bonded with its content. This is most easily seen in work that is comprised totally or partially of purely computer generated (virtual or synthetic) forms. Certainly algorithmically generated prints fall into this category. Additionally, I include work born of a digital matrix, such that the final look of it is something that could not or would not (not practical to) be produced with existing trad-media tools.

Getting back to the first 43 years of digital art. What form did all those early artifacts take in those years? Along with animation and some screen-based imagery, a fair amount of it was hardcopy, i.e. digital prints of various types. These were at first photographed off the CRT, and then later plotted on to microfilm and then on to paper.

Who were these early digital print artists? Let’s take a moment to highlight some of them in rough chronological order. First there was the aforementioned Ben Laposky. From 1953-56 Herbert Franke also experimented with oscilloscope imagery and then later, in the very early 60s, he created monochrome computer graphics. Georg Nees’ plotter piece called *Cubic Disarray* (1968) remains a poetically elegant computer graphic rendering of order and chaos.

Michael Noll’s algorithmic simulation of Mondrian’s painting called *Composition with Lines* was quite brilliant (1965). At Bell Labs in New Jersey, Leon Harmon and Kenneth Knowlton produced their famous *Studies in Perception* series (1966-67.) They invented the scan technology to do it and then created these digital images, which were output in a curious array of typo-pictography that corresponded to the originals’ levels of gray. Lillian Schwartz also collaborated with Knowlton at Bell Labs around this time. One of the haunting and expressive portraits they plotted was reproduced in Jasia Reichardt’s 1971 book called *The Computer in Art*.

Charles Csurik’s Leonardo Da Vinci inspired linear interpolations and a piece called *Sine Curve Man* (1966-69) were manifest of a fluid and subtle intuition. David Em’s (late 70’s) work using software tools built at JPL in Pasadena, has held up incredibly well. Some of these images could be classified as late 20th century masterworks. Manfred Mohr (working with the computer since the 1960s) and later Roman Verostko (in the 1980s) are key exponents of algorithmic art - their still images are created by graphics programming.

Yoshiyuke Abe (in the 1990s) is a contemporary practitioner in this genre, writing his own code and working in a color palette that is almost extra-terrestrial in its electronica hyperbole.

Creating imagery with high-level 3D modeling software are artists like Yoichiro Kawaguichi (starting in the 1980s) and William Latham (early 1990s). They have both produced images of enigmatic otherworldly biomorphics that show a direct correlation to their riveting animation work. Rebecca Allen's famous flat shaded heads of the band Kraftwerk are classic images from about 1985-86. Tensegrity sculptor, Kenneth Snelson's lesser known Wavefront 3D images (1988-89), output as digital photographs comprise a body of work that is multi-valent in content as well as strikingly beautiful. Char Davies' (1989-93) pre-*Osmose* digital print work, output in various ways including as large scale photographs are poignant, resonant and dare I say it, almost immersive. What all these artists have in common is that they can all be credited for generating some of the most significant still images of all time.

Having said all that, where is this art? Where are all these artifacts? I sure would love to go to my local art museum and see a collection of this work on "permanent" display. And I'd like to see these pioneering artists get recognized in the art market place as well. (Too few, so far have gotten enough play, so to speak.)

I am pleased to report that recent steps toward this goal have been made. For instance, a virtual digital art museum at (<http://www.dam.org>), features excellent coverage of many of the computer art pioneers. A Chelsea, New York gallery called Bitforms (<http://www.bitforms.com>) features digital art exclusively and possesses a curatorial scope that includes digital print artists such as Barbara Nessim and Manfred Mohr as well as the work of many brilliant young new media artists. Finally, it would be important to acknowledge the New York Digital Salon and the annual SIGGRAPH art show for their roles in presenting a balanced sampling of digital art over the years.

As well as purveying the work of the pioneers and the new media stars, let's hope that the best in contemporary digital print work is recognized and fostered by the art world and presented to today's audiences and collectors. Credit where credit is due, as they say, all the while, embracing the notion that it is more important to be timeless than timely.

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