

Beck Direct Video Synthesizer

by Stephen Beck

Videospace:
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" Sculpting electrons into photons in real time. "

"It is we ourselves who see an image.
We either see it or we don't.
It is as simple as this or that.
The Way lies not in the equipment" *

The Beck Direct Video Synthesizer was born of the inner necessity to project outwardly and share the images seen within my minds eye - phosphenes, dreams, archetypes, hypnapompic, psychedelic, hypnagogic. and meditation images. These images I have seen all my life on an inner screen where no camera has yet been invented to record them.

I made my video synthesizers in the pre-digital era of 1968 for VSI #0 (Video Synthesis Instrument number zero) and 1970-1972 for the larger Beck Direct Video Synthesizer instrument seen here, which was built under an NEA artist-in-residence grant at the NCET. It is primarily an analog circuitry based computer - not a digital computer. Some early digital logic gate chips are used within it. There are over 20,000 hand soldered connections involved.

The visual design aesthetic model of the Beck Direct Video Synthesizer is constructivist in nature, not distortionist. Based on my personal visions it differ significantly from other video image processors and video synthesizers of the era, which were mostly based on colorizing or distorting images originating from TV cameras, rather than constructing it only from electrons.

The modular structure of the Beck Direct Video Synthesizer with its patch cord programming and control voltage system, allowed me to "play" color video images in real time, following the lead of early analog music synthesizer such as Moog and Buchla. My image model was based on synthesizing four main visual elements: color, form, texture and motion. Later I learned of painter Wassily Kandinsky's Point to Line To Plane and recognized a common bond to his non-objective theories.

My dream was to create an "absolute television" where the images came from within the technology, but were composed with artistic intentions, to try to "make something

beautiful with television" - whatever that might mean. Perhaps I was exploring a corner of Videospace.

The term 'Direct Video' was coined by Brice Howard in 1970 after I had shown him my early works. Direct Video suggested an image that was made directly from raw pulsating electrons rather than derived from a TV camera. Mr. Howard was the jovial director and video philosopher of the National Center for Experiments in Television at KQED-TV in San Francisco. I called myself an "electronic videographer" - one who makes visible images using electronics.

It was my honor to be invited by Mr. Howard to be one of the video artists-in-residence at the NCET from 1970-1974. At the NCET I was enabled to build the larger Beck Direct Video Synthesizer #1 based on my earlier pilot version VSI#0 at the University of Illinois in Champaign-Urbana. NCET also provided me access to videotape, and the nature of my videosynthesis work expanded from live performance and video sculpture to encompass video composition and broadcast TV. A rare opportunity to play my video synthesizer live, on-the-air TV, on the SCAN program on KQED-TV, May 19, 1972, resulted in Illuminated Music 1, to music by jazz great Yusef Lateef.

The NCET was a video Bauhaus - a multidisciplinary exploration of what else television and video might offer beyond news, weather, sports and derivative programming. It was a lucky place for a young artist to be, in the American cultural Renaissance occurring in San Francisco, California in the 1960-1970's.

At the time there was no such thing as color raster digital computer graphics, no RAM chips, no microprocessors or 3D video chips, no PC's. In a sense, our "personal television" prefigured the personal computer that followed in 1976. It was necessary to "roll my own" tool so as to be able to project the images I could see onto the glowing light of a color TV video screen.

The light from a CRT (cathode ray tube) is unique - glowing, emitted light - in contrast to reflected light of paintings, sculptures, film, or most all other visual experiences, other than neon, fireworks, fluorescent light and stained glass. This light is what attracted me to video as a visual art form, and which still does.

Beck Direct Video Synthesizer #1 (1970 - 1972)

This large console implemented the modular design based on the image model of color, form, texture and motion. Quad RGB positive and negative colorizers are in the lower right hand section. A ten channel video switcher is in the center, and several joysticks provided manual control voltages to drive the form and texture generators on the second row. Point to Line to Plane geometric unit processors occupy the center section of the 2nd row. Synchronized horizontal and vertical reference signals were provided.

All images were "programmed" using the patch cords to make specific image connections. The circuit cards below are mostly analog circuits, with a few RTL and TTL logic chips available in 1970-1971. The TV sync generator on the lower left and the video encoder on the lower right provided broadcast TV standard operation of the video synthesizer, so I could (and did) play "live on the air TV". My use of reference color bars were also generated for "tune your television" setup, so that colors were calibrated.

Auxiliary analog waveform generators were placed on the top rows, along with a video oscilloscope to monitor "legal" video levels for broadcast recording. The positive and negative colorizers could produce 64 bit color equivalents, but many of these colors were "illegal" out of range video voltages. In live performances these rare and unusual colors could be seen, but never could be recorded onto videotape because of the video signal excess voltage produced by these most unique and special colors.

Contrary to popular notions, creating images with the video synthesizer was not a totally random act. Clear thoughts of the image electronic structure lead to patching specific patterns. However, many times random discoveries would also occur, some interesting, others not.

Selected Video Playback Works - Examples

The video monitor atop the Beck Direct Video Synthesizer in the Museum Gallery are some of the compositions and works I created with it. Earliest works like Point of Inflection (1971) move slowly, paced by the sound scapes, and were recordings of performances. It was early in the process, and only a few image modules had been completed. Later in works from Cosmic Portal (1972) I created the visual composition first, then added a sound score of my own composition. I wanted to find the visual tempo to carry the image flow, not just rely on music or sound to do so. Though in Illuminated Music 1 (1972) the music was the flow. More complex videosynthesis modules and then film editing allowed compositional structures such as Cycles (1974) and eventually Union (1976), perhaps my best work. Two video camera processing channels were added in 1972 so that I worked with dancers in works like Conception (1972), Shiva (1973) and Anima (1974) and the Electric Concert (1973) with dancer Katie McGuire. In 1973 I began to develop ideas about digital video synthesis, as well as to realize the link between video scanned images and the tradition of tapestry. The Video Weaver resulted, the first digital video synthesizer, added atop the analog one. The works in the Video Weaving Series (1973-1976) resulted.



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*(quotation from "Zen in the Art of Photography" by Robert Leverant, Book People, Berkeley, CA©1969)

Internet posting: <http://people.wcsu.edu/mccarneyh/fva/b/BeckDirectVideo.html>