

WAS LEONARDO DA VINCI
THE FIRST COMPUTER ARTIST?

COMPUTER ANIMATION IN THE 80's

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ABSTRACT

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The media would have us believe that computers rate with fire, agriculture, and language as one of mankind's great leaps, and that computer created pictures are one of the incomprehensible bits of technological magic. Actually, computer animation is a fusion of concepts, most of them quite old. If IBM had been around to sell Leonardo da Vinci a 4341 he most certainly would have been a computer artist.

Computer animation is most certainly concerned with notation, specifically the definition of visual space over time. The perspective calculations we employ were figured out during the Renaissance and employed by leading painters of the time. Perspective provided a mental set for structuring visual space. During the French Revolution, Jacquard designed punch cards to describe complex woven patterns on his power looms. The binary structure basic to those woven images - the weft threads are either over or under the warp - and the algorithm that creates them employ what weavers call drafting notation.

By the early nineteen fifties a company that had previously specialized in building mechanical punch card sorters (IBM) was building interactive computer graphics systems for the Air Force that could not only track radar blips but also associate data such as altitude, amount of fuel and "whose side" the blip belonged to. When the computer wasn't busy keeping the world safe for democracy it could animate a grass skirted native, complete with a light pen sensitive halter top.

In the sixties and seventies, more and more 'reality' components -solidness color, illumination, shadows and textures- became a routinized part of the computer graphics vocabulary. Computer modeling of the visual world began in earnest. Major applications included the representation of the abstract and the modeling of unbuilt structures and machines to predict their functionality. A top-of-the-line video game like a six million dollar F-14 simulator can 'navigate' terrain, 'experience' weather conditions and even 'dogfight' with another simulator.

One cannot deny that the iterative aspects of animation (move, expose, and frame advance) lend themselves to mechanization. But the full impact of the computer lies in its ability to speedily translate a notation for defining and manipulating environments into actual images. Coupled with an ability to interactively preview and modify our creations, the effect is the evolution of a medium of visual thought.