Throughout the late 1970s, the Vasulkas were occupied with designing and building the Digital Image Articulator, or Imager, with Jeffrey Schier; the didactic nature of many of their videotapes from the 1970s reveals the immensity of their undertaking to comprehend the elements of the electronic image and digital imaging technology. This step from analog (in which the image is manipulated through the regulation of voltage changes) to digital (in which an image is divided into picture elements, or pixels, which are mathematically coded) was a crucial development in their work. These tapes exemplify the project undertaken by the Vasulkas to define the phenomenology of the digital image as a kind of vocabulary. Working with basic forms, such as a sphere (or cantaloup) and a hand (symbolizing gesture and expression), the Vasulkas examine the basic elements of digital language. Vocabulary, a work that is a hybrid of analog and digital, precedes the Vasulkas' construction of the Imager. Here, they examine the "basic energy laws in electronic imaging" with a digital delay (which produces a deliberate timing error to give the image a kind of visual echo), a scan processor (which reduces the analog image to its scan lines), a keyer (which allows one image to be inserted within another), and a colorizer, to explore the malleability of basic forms. Both Cantaloup and Artifacts are documentary works in which Steina and
This concept of the irrevocable tie of electronic sound and image is playfully pursued by Steina in *Violin Power*, her "demo tape on how to play video on the violin." The tape begins with a straightforward black-and-white image of Steina playing the violin and progresses over time toward her increasing use of the violin in conjunction with video tools. Steina's eventual replacement of the violin with the video camera as her primary instrument, results in the violin becoming an image-generating machine. Rigged up to imaging devices, the violin transforms the camera image, rendering it a surface on which "music" moves as a kinetic force.

*Marita Sturken*
Matrix is a series of multi-monitor works that explores the relationship of sound and image in electronic signals: sound as generated by the electronic image; sound that creates an image; and sound and image created simultaneously. As phenomenological exercises on the construction of electronic image and sound, this series is also a playful study of movement, in which abstract forms travel across multiple screens to symbolize the kinetics of electronic signals.

Allvision, 1976

One of the first works of Steina's Machine Vision project, Allvision is a rotating spherical device that mediates the viewer's experience of the viewing space. Steina's concept of "allvision" involves exploring a way of seeing that is not restricted to the human eye, but which is instead an all-encompassing, machine-derived vision. In Allvision, the all-seeing mirrored sphere transcends spatial limits such as up/down and inner/outer by situating the viewer within abstract electronic space.
The collaborative work between video artist Steina and I (Joan La Barbara) began early this year when Steina and her husband and partner, Woody Vasulka, developed an interactive system that allowed my voice to intercut and pass secondary video images into a primary one. The specific sounds made by my voice affect the shapes and patterns of the bleed-through. This work will eventually be extended and performed in real time, i.e., live.

Joan La Barbara, dubbed "the reigning vocal wizard of the avant-garde," is a composer, performer, media artist, writer and pioneer in experimental and extended vocal techniques. She has won numerous awards and honors for her work including four National Endowment for the Arts fellowships (in Visual Arts, Music Composition, Solo Recitalist, and Inter-Arts programs), radio commissions in Europe and America, and a composer-in-residency from the DAAD Berliner Künstler program. Her career began in the early 70s as the vocalist of choice for major contemporary composers, including John Cage, Philip Glass and Steve Reich. She has premiered numerous works especially composed for her unique vocal qualities. La Barbara has produced five albums with her own compositions: Voice is the Original Instrument, Tapesongs, Reluctant Gypsy, as lightning comes, in flashes and The Art of Joan La Barbara. In recent years, she has appeared with the Houston Symphony, the Los Angeles Philharmonic's New Music Group, on the San Francisco Symphony's New and Unusual Music series and the New York Philharmonic's Horizons '84 Festival.
Steina's *Lilith* (USA, 1987) uses focalplane shifts and frame-grabbing to enthrall our gaze, to transfixed and hypnotize us; then her protagonist, cobra-like, darts across the paradoxical landscape (that has become Steina's signature), with a sibilant and ambiguous voice; her image inscribes, indelibly, the fact of presence, but — ironically and impossibly — without the content or context of presence.
Woody offer informal explanations of the Digital Image Articulator and the process of digital imaging in real time. In Cantaloup, Steina casually documents the designing and building of the Digital Image Articulator and explains the size of pixels, the layers (or slices) of color and tone used to create form, and techniques such as grabbing (freezing) the image and multiplying it. Artifacts is Woody's explanatory tape of the Imager and his system of binary syntax—an examination of digital image transformation based on mathematical principles. Artifacts demonstrates Woody's symbiotic relationship with imaging machines and tools: he says in the tape, "I have to share the creative process with the machine; it is responsible for too many elements in this work. These images come to you as they came to me—in a spirit of exploration."