

## EVENTS IN THE ELSEWHERE

Our working process for this project has involved a series of experiments to develop the technology required to accomplish the kind of direct connection between the live performer and the stage environment. Essentially we have been attempting to redefine the theatrical experience by giving direct control of all parameters of the theatrical environment to the performer. These parameters include but are not limited to: lights, live camera motion, triggering and speed of pre-recorded video images, onstage prop movement and manipulation of sound sequences.

### Direct Sound/Image Response

Our initial experiments were in direct sound/image response performed in realtime. The voice was used to cut between two separate pre-recorded images using matte and masking techniques. The matte literally cuts a hole in the video image into which a second video image is placed. Masking obstructs the image. By choosing specific frequencies in the voice which were harmonics of the two frequencies into which video is locked (15750 cycles per second for horizontal roll and 60 cycles per second for vertical), we were able to have the voice effect control over heterodyning, etc.. Thus we were able to achieve a coherent relationship between the live performance of the voice and the resulting matte and masking of layered video images.

The sound material had to be focussed in a specific way in order to affect the image key. While a great deal of vocal material could be included, only certain aspects of the material actually affected the video interface. This voltage and frequency information was sent to the R/E scan processor which translated the information into a coherent television frame. The information from the scan processor is fed as a television signal into a standard video mixer where it is used in various modes, mostly as an external key to provide a syntactic relationship between two video images. As only certain parameters of possible vocal material were translatable to the R/E scan processor, the singer, using the voice as sound source had to learn to "play" the video images as an instrument, organizing vocal material with regard to how it affected the onscreen images and the modulation between the two separate pre-recorded images within the layering process.

The compositional process then was both intuitive and fixed, with regard to the material which actually affected a perceivable result.

### Software Interface with Computer

Devices were developed at STEIM in Amsterdam and by Russ Grizzo and Jody Niesen of Los Alamos laboratories, which controlled stepper motors. Mark Coniglio and Morton Subotnick have been developing "Interactor", a software program which allows direct interaction between various aspects of performance and computer controls, translating these aspects into numerical information and thus readable by MIDI compatible devices. *an audio device*

By connecting the voice, through microphone, to a pitch rider we were able to translate this analog sound into digital MIDI code. Then by accessing Interactor, this vocal information, through the Macintosh computer could speak to the micro-processor-based stepper motor controller which, in turn, controlled the pan-head arrangement of 3-axis camera movement, pan, tilt and rotation.

Again, audio composition was affected by precisely what material could be interpreted by the pitch rider and, therefore, by the camera motors and ultimately by all controllable devices.

### Notational System *a*

One of the aspects of this project is to develop a notational system by which predictable results can be achieved, i.e., connecting sonic material to its direct relational result. In this case, the sound source, the voice is the sole analog element and must be translated into digital information before it exists on the operational level of control.

### Theatrical extensions *MIDI DANCE*

In addition <sup>(a)</sup> to the above-mentioned control parameters enabling the voice, through these devices, to control lighting, sound sequences, camera motors, etc., the voice will also be capable of triggering variable-speed tape recorders, thus establishing a mode of choosing images, the variability (velocity) of these image sequences and direction of pre-recorded scenes. This concept points toward the possibility of virtual memory-based scenes, the future frontier of dramatic media-based presentations.

Video sample

The video sample enclosed with this report includes documentation of the work process as well as excerpts for the work-in-progress, "Events in the Elsewhere".

The work process segments include:

- (1) backstage equipment set-up and onstage live performance of direct sound/image response (Center for Contemporary Arts, Santa Fe)
- (2) Morton Subotnick, Woody Vasulka and Joan La Barbara (Steina as camera-operator) at work in Agua Fria studio on voice activation of camera motors.
- (3) Mark Coniglio and Joan La Barbara (Steina and Woody operating cameras) at work on Coniglio-developed MIDI-dancer equipment and pitch rider, allowing motion and sound control of sound sequences.
- (4) animated and static space definitions - computer graphics

Excerpts from "Events in the Elsewhere"

video image	sound material
expanding and contracting universe	inhaled/exhaled breathing
protagonist, stationery in chair	(silent)
begins to imagine device as means of escape	
graphic skeletal camera appears in upper corner	
mouth starts to open	
cut to camera in sun, sound activated	modified motor
cut to camera in architectural space (de Chirico)	(silent)
hand "pushing" video image	voice activating cameras
body/statues flying in space	voice affecting cameras and video feedback
signing over umbrella	sampled voice to include:
(Chinese, Hopi, German spoken texts focussing on theoretical physics)	
computer graphic of face stretched over pyramid	sampled voices
birds pulsating	modulated voices
negative desert as alternate reality, slo-mo	modulated voices, electronic sounds
Gaia, motion/sound breaking light barrier	modulated voices
elevator doors open to reveal alternate realities:	
rocks, steam, bridge	

## OUTLINE/DESCRIPTIONS

Descriptions of various processes

### I - Direct sound/image response (Voice Windows)

real-time performed

singer directly controls image in real time

"space" is pre-recorded

images are pre-recorded

layering done as performance (Agua Fria and CCA performances)

interaction of voice and image: initiated by instant response into this pre-recorded visual instrument. Composition was established by best-suitable aesthetic interface between elements of voice and image

matte:

direct syntactic input = key

roll

matte (cuts hole) or mask (obstructs image)

cut between matte and mask

b/w two separate images

wave-form arranged aesthetically

video is locked into two frequencies: 15750 cycles per second = horizontal; 60 cycles = vertical

hold image in frame of position

to interact, one has to select frequencies which are harmonics to these fundamentals (of tv frequencies) to hold/ stabilize the image

looking in voice for frequencies to develop heterodyne, etc.

influence coherent relationship between voice and television frame

detailed modulation patterns using audio and video p[rocesses = accumulated techniques

audio related as aesthetic perceptual unit

cohesive relationship as visible image

R/E scan processor - analog

related to television scanning rates but rates are programmable

has its own oscillators

conditioned voice - converted audio analog signal into control

parameters

spectrum of voice into more suitable into

amplitude

filtering

voltage

certain frequency patterns

voltage and frequency send (interface w/) scan processor

into coherent tv frame

used video info as standard video

by re-scanning coherent frame from scan-processor thru camera into  
video information

info from scan processor is fed as TV signal into standard video mixer

where it is used in various modes, mostly as mode external keyu

to provide syntactic relationship between two video images

establishing relationship

modulating relationship between A or B pre-recorded video images

certain aspects of sound source(voice)

learning instrument from visual aspect

sound material had to be focussed

other material could be included but only certain aspects were affecting  
image

intuitive process

II - voice to mic to pitch rider

translated analog to digital MIDI code

software in computer (Interactor = MAC)

speaks to micro processor-based stepper motor controller which  
controls pan-head = arrangement of 3-axis camera movement - pan, tilt,  
rotation

difficulties of developing notational scheme re cvoice accessing 3-axis  
controller

pre-conceived pitch material to affect motion

voice is sole analog

digital is operational level

syntactic device of stage

voice space speed and directions

## VIDEO

1- physical movement and sound = MIDI dancer

2- voice onto image - Voice Windows

3- spatial orientation of voice-controlled camera head

4- choreography of interface = score system

desire to create new notational language

5- additional video info

Gaia = movement/voice interaction

concept

6- voice control of tape

extention of pan-head concept in theatrical use of pan-head as performer/pointer (device) we have extended concept of pointer as possible to operate VTR in variable-speed mode with seamless mode of choosing image where again voice is the major control source to the variability (velocity) and direction of pre-recorded scenes.

This concept is pointint towards possibility of virtual memory-based scenes which is the future frontier of dramatic media-based presentations.