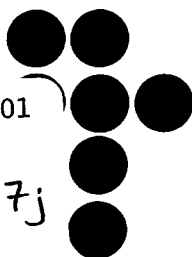# COMMUNICATIONS FORUM

ART AND NEW TECHNOLOGIES:
TWO MULTIMEDIA SPECULATIONS

October 15, 1987

Seminar Notes

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMMUNICATIONS FORUM

ART AND NEW TECHNOLOGIES:
TWO MULTIMEDIA SPECULATIONS

October 15, 1987

Seminar Notes

Barry Vercoe
Experimental Music Studio, M.I.T.

Richard Leacock
Film/Video Group, M.I.T.

Gail Kosloff
Rapporteur
MIT

Professor Vercoe started the session by raising the question central to his presentation--"Can computers understand musical expression?" He noted that this question has become particularly relevant given the advances being made in digital technology. Vercoe believes that artists' emotions are the same today as they were long ago and wonders what the impact of new technology will have on their music.

He traced the development of musical composition through history, begining with composers writing for the symphony in the 17th century. He noted that composers like himself in the mid-60s were intent on combining new media with existing musical practices. He believes that musicians in the future will want to take advantage of the new media since it will allow them to add to their "palette of sound."

Vercoe is concerned with the potential power of computer technology over art. In his opinion, there is the danger that technology could take over the art and that the art would have little resemblance to human expression. He raises the question--Is it safe for us to permit technology to dominate artistic expression?"

Professor Vercoe related several examples of how he and other musicians have experimented with playing live instruments in concert with computerized performers. In these situations he found it was possible for the live musician to work with a computer that "performs and is effective although it has no concept of what is going on."

Vercoe also discussed the multidimentional nature of a musical score: music is more than what's written on a page. He emphasized that when we go to a musical performance the information we receive tells about (1.) the device, (2.) the room, and (3.) the person (musicians). In his opinion, more people should be exposed to non-verbal communications.

He defined the "synthetic performer" (the computer) as having three components: (1.) listen, (2.) perform, and (3.) learn. To illustrate these activities, Vercoe described his work in France with Larry Beaureguard for whom he was commissioned to write a piece. The important question addressed by Vercoe's research was "how well the computer was able to follow the performer?"

In a video, we were given the opportunity to see Prof. Vercoe and Larry work together. Larry experimented with playing a Handel piece in various ways on the flute, e.g. varying the tempo, playing wrong notes, etc. and seeing how "tightly" the computer could follow. Since the computer did not have the capacity to learn at

this point, Larry did "trip-up" the computer when he made stylistic changes or played very quickly. The computer was playing like a musician that was "sight-reading" and did not benefit from rehearsal(s). Vercoe mentioned that some music (e.g. music by Kreisler a late 19th century composer is so expressive in tempo that playing by sight-reading is difficult.

After Larry's unfortunate death, Professor Vercoe focused his research in France on the violin. We were shown a video of a young woman playing the violin as the computer collaborated in the performance.

Based on these experiments, Vercoe gave us his explanation of what is really going on when a musician proposes to perform a piece: The musician has a concept of the score and a sense of the components of the script. Then he/she may make modifications to the script. Next, the performer proceeds with the actual musical performance (an example of how problems are solved in real time). The musical piece may be rehearsed several times so that the musician can gain a sense of which lines are more important than others.

During Vercoe's experimentation with live musicians in this way, he found the minimum delay between listening and responding to cues to be between a fifth and a tenth of a second. He felt this was respectable. When the computer accompanist was set any tighter than this in following the live musician, the performer (e.g. Larry) felt uncomfortable. This was different from the relationship Vercoe thought the musician would want with the computer (to have the computer follow as closely as possible).

Vercoe said that as a composer he is interested in finding new ways to say old things. Music is also an interesting phenomenon in that it exists across cultures and it is something the brain likes to do in its spare moments. He emphasized that little research has been done on the structure of musical expression, but has hopes that progress will be made at MIT in this area. He believes that artists should approach technology, not as a threat, but as an undisciplined resource that can be taught.

The second speaker of the afternoon was Professor Richard Leacock, the documentary film-maker. Leacock admits that he does not have a lot of familiarity with computers. He illustrated his attitude toward technology by recalling his experience with video equipment back in the 1960s. At this time he was involved with the making of documentaries ("direct cinema") and he was especially concerned with the need for synchronous sound.

He invented a special 16 mm. camera that permitted this. Today Sony's new miniature 8 mm. cameras do the same task even more efficiently.

Leacock showed excerpts from his work, including an extended scene from the documentary, "Crisis-A Presidential Confrontation" by Drew Associates, concerning the integration of the University of Alabama in 1963. Leacock's unobtrusive equipment permitted access to the private, the unofficial and the unplanned in ways not available to crews limited by elaborate sound equipment. In one passage, we see Robert Kennedy, then the Attorney General of the United States, in his Washington office, talking by telephone to his deputy, Nicholas Katzenbach. The latter is on the U. of Alabama campus devising strategies to use federal troops to enforce integration orders. In the midst of this scene of political tension and crisis, Kennedy suddenly puts his small daughter on the line. The film allows us to see and hear Katzenback engage in extended small talk with the child.

Leacock stressed how unusual it was for such important political figures to permit such intimate behind-the-scenes recording of history in progress. Perhaps, he suggested, one explanation for this special access he and his collaborators enjoyed was that his group was the only one equipped with the new compact camera systems. For Leacock, the slight loss in image quality was a price worth paying for such rare chances to film the process of political strategy and decision-making.

The 16 mm. video technology of the 60s was relatively cheap. In comparison, the cost of making a one hour documentary for TV is in the range of a quarter million dollars. Leacock feels that this rise in cost is "obscene" since he believes "ordinary people should be able to make videos."

Professor Leacock described Sony's 8 mm. video camera as extraordinarily good and simple. He characterized it as "a dumb camera," but it does everything he is after. Leacock assumed that when we had this "dream camera" there would be a lot of people making movies. He is still surprised this has not happened.

Leacock believes technology in this area is still improving. For instance, a new super one-half inch VHS system is close to completion. However, he is troubled by the industry's bias toward film-makers who have joined "the club," and resistant to the work of students and those wanting to experiment with the medium.

Leacock's commitment to documentary films, and to the use of miniaturized equipment that frees the film-maker, is an attempt to "bridge the gap between the illusory world and the real world." According to Leacock "the real world is more fascinating than the concocted world" one sees in most television and Hollywood films. Leacock is primarily interested in "observation." He feels it takes a different sort of person--"an artist"--to make these small productions.