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### Recursive Time Modeling in "Retentions 1 - 4"

#### Abstract

"Retentions 1 - 4 " is a sound-image work for video diffusion and loudspeakers.

#### Vision Paper

After working for several years in the area of sound synthesis involving functional iteration, I began working with video images. It occurred to me that some of the techniques used in the creation of sound textures could be applied to the organization of the flow of images.

Just as in certain kinds of nonstandard synthesis, new forms of sound are produced by means of recursive time-modeling techniques, I thought that it might be possible to redefine visual events by applying procedures involving self-replication and the decomposition of the video stream.

In "Retentions 1 - 4", an attempt has been made to rework the idea of cinematic "montage consciousness". My initial thought was that if the individual frame could be submitted to processes of recombination through random selection, it might be possible to modify the experience of cinematic time.

Using a sequence of contiguous frames as a starting point, I set out to regenerate the population of time frames by dispersion through random selection. (This procedure is not unlike the specialized algorithmic composition and generative routines used in other time-based arts.)

In order to prevent things from breaking down, I kept each frame sequence small. If there had been too many frames in the sequence or the visual content of the various frames making up a sequence had been too disparate, the resulting videographic content would have had an arbitrary quality.

Throughout, the individual frame was regarded as primitive and analogous to a sound sample segment. As in granular sound synthesis, which depends on the production of microevents, I attempted to isolate the energy in a single frame in order to allow an intermittent microstructural time-based form to emerge.

Using nonuniform distribution and other dispersion techniques, I sampled the retentional and iterative states of the time series. As non-overlapping sets of images were submitted to these procedures, halting, suspensive movements were produced. Additional frame groups were introduced by incremental layering and this produced further, cross-cutting, movements.

In "Retentions", the streaming sometimes consists of parallel events; at others times there is an intermodulation effect, created through the conjoining of parts of the image layer. Relays between several two-stroke cycles create rhythms based on the replication of the coupled frames.

The four event processes chosen -- corresponding to the four parts of the piece -- were selected for their distinctive gesture signatures. This ready-constituted content, consisting of continuous movements through space, made it possible to control how an event stream unraveled and was absorbed into its own trace.

A kind of cross-over mutation occurred when the images were exposed to motion-blur, spherical rotation and rescaling. Contributing to the telescopic effects of near and far, fast and slow, was the use of nested recursive operations in combination with premultiplied alpha channels applied to overlapping event spaces (see figures 1 and 2).

In the sound track of "Retentions", micro-level patterns contribute to the overall organization and to the emergence of 2nd-order sonorities. Although the sound sometimes appears to be derived from and secondary to the image, sound and image were, in fact, created independently. The structure of the sound mirrors the convulsive nature of the image because similar methodologies inform the making of both.



Figure 1



Figure 2

Figures 1 and 2: Adjacent frames from "Retentions 1 - 4" (Part 4)

#### References

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