

Tape Concerts: Stiftelsen Elektronmusik Studion (EMS, Stockholm)

EMS is a non-profit government-supported foundation. The main objective is to provide facilities for electro-acoustic music production to serious composers of all genres, which means that also serious non-commercial composers of popular music can use the studios. All studios are free of charge. These circumstances has resulted into a great interest among both foreign and domestic composers for using the EMS studios. For several years there have been a great number of foreign composers of many nationalities working at the EMS.

The EMS has facilities both for analog and digital music production. The analog studio is based on a MCI 24 track taperecorder and a MCI mixing console with automatic mixdown, a fairly large Buchla analog synthesizer and miscellaneous equipment like Harmonizer, compressor limiter, equalizers, etc. The analog studio can also be connected with the main computer system if the composer would like to make use of digital sounds.

The digital music production is based on two computer systems. A third will come into operation early autumn 1984. EMS has a DEC PDP 15/XVM (similar to the Utrecht studio) and a DEC VAX-11 with an array processor Floating Point FP-120 B. The main software for the PDP-15 are the real-time interactive program IMPAC and the universal purpose program EMSETT. Both developed at the EMS. Other software are available like PR 1-2, POD 6, ILI, CHOR, STOCHOS, etc. The main software on the VAX-system for the time being is CHANT developed at IRCAM. We hope to receive a special grant to get deeper into signal-processing, since we have a machine configuration suitable for such a work.

The third computer system will be based on a Hewlett Packard A-700 computer, which will function together with a custom built digital oscillator bank of 256 oscillators which is now completed. This system will also be a real-time interactive system. The software is now in the process of being written.

The EMS was founded in 1968, but existed since 1964 as a department of the Swedish Radio. EMS still has a close relation to the Swedish Radio. This makes EMS one of the first computer music centers in Europe, maybe the very first.

In April 1985 EMS will move into brand new locations especially designed for EMS' demands. There will be three main studios instead of the two we have for the moment. One of these new studios will be a real 4-channel studio where great consideration has been given to the very special problems involved in such a studio. We believe that there are very few true 4-channel monitor studios around in the world. The three main studios will be based on floating floor and "a box in box" principle for achieving maximum acoustic quality. In addition to the main studio there will be one educational studio and one smaller "all purpose" studio. There will also be a number of terminal rooms with loudspeakers for computer music composing.

LARS-GUNNAR BODIN

"PROLOG"

Prolog is an independent introduction to the mixed media composition "Clouds" from 1976. Clouds involves 3 singers, 3 dancers, 5 film projectors, 10 slide projectors and 8 track tapes. Prolog is here a separate stereo version. It is based on material generated using Dartmouth college computer music system, but is then mixed and to some degree modified in the electronic music studio of the Royal Conservatorium in Stockholm. The piece is divided into

3 distinct parts. The first part is based on rather long stretched sounds which hopefully will create some kind of emotional feeling in the listener. The second part consists mainly of two structures which are based on "tone color melodies". The first one has 100 Hz as central pitch and the second alternatively 800 and 1000 Hz. All the pitch changes are created by altering the harmonic content of each tone. The fundamental remains consequently the same tone.

PETER LUNDEN/BO RYDBERG

"SHAPES"

The composition is realized on the VAX-11 computer of EMS (Stockholm) in connection with the development of the signal processing program package SHAPE. We have used different facilities included in this system, e.g. various synthesis methods, sound analysis, digital sound editing and real-time quadrophonic mixing.

The main idea in the piece is to "shape" and transform sounds and sound masses so that the musical room also becomes the physical. The sound-transformations are also the foundation of the overall outline of the piece.

All the sound material is totally synthetic, although it is an offspring of analyzing concrete sounds, including instrumental sounds, in order to get more natural sounding results.

PÄR LINDGREN

"HOUDINISM" The composition was commissioned by the Swedish Radio and produced in the electro-acoustical music studio at the State College of Music in Stockholm.

The work is dedicated to the childhood memory of a childhood hero.

TAMAS UNGVARY

"LAUBE DES FLAMMES." 14' (1984)

The PDP-15/XVM computer at EMS can control studio devices at the same time as it calculates music. The music can be defined by the composer in real-time by controlling compositional parameters such as density, frequency and amplitude ranges, note durations, etc. In other words, it can function as an instrument in connection with one of the widest used programs at EMS, IMPAC. This piece can be seen as a Fantasia, in which I let my imagination play freely within chosen compositional limits and given hardware possibilities. My intention has been to make music which gives an orchestral impression without using traditional instruments.

TOMMY ZWEDBERG

"EXMEX"

Exmex is a musical extract from the documentary "Departementel". In this film, the music was put in the foreground—nothing is actually said. The sound-material is partly electronically generated, and partly consists of concrete sounds, for instance Mexican folklore music and the sounds from weaving looms.

Bo Rydberg

MICHAEL HINTON

"BEYOND LADYMEAD" (1984)

I have spent the last nine years at the Elektronmusikstudio in Stockholm developing computer music instruments and compositional tools. One of these instruments, IMPAC, which allows real-time creation and control of complex musical structures, has been widely used by both Swedish and foreign composers.

My current work is aimed at finding an answer to digital music's greatest weakness: the problem of timbre. My method is to extract wave forms and amplitude envelopes from recorded sound, and then build up digital oscillators that have the same characteristics; the continuous variations in the frequency spectrum that characterize all natural (non-electronic) sounds are achieved by controlled interpolations between two or more such extracted waves.

"BEYOND LADYMEAD" is my first composition to explore these possibilities.

ÅKE PARMERUD

"OUT OF SIGHT" (1981)

"Out of Sight" is a so-called "pure" computer composition, which means that all the musical material is produced directly in a digital studio without any analog modifications. The piece is part of the multimedia work "Flood of Glass" (earlier called "Suburban Night") and functions together with dancers and slide-projections. The purpose of the composition (apart from its musical and dramatic function in the multimedia work) has been to use and integrate a wide register of the sound expressions of the computer in a compositional entity, compared with the emphasizing of certain qualities and characters which is common in many of the computer music produced up till now. The piece was realized in the EMS computer studio.

ROLF ENSTRÖM

"FRACTAL"

Image: THOMAS HELLSING

In "FRACTAL" both music and images emanate from the same overriding structure. The purpose has been to find various approaches to coordinate these two different media without getting caught in conventional ways of thinking.

When working with music and images one will often notice that the images seem to attract more attention than the music, even though the music conveys "the same thing" as the image. The music can then be said to be a part of what the image "contains".

All the same it is not so easy just to let the music and the images flow in completely different courses. The goal must be to bring about a meaningful exchange between these two media. In "FRACTAL" the contact surface lies between the media in merely structural terms. Some real associations between music and images are not intentional. But naturally there are points of contact in terms of ideas.

Concrete material has been the point of issue for the images in "FRACTAL"—in this case photo portraits, photos of streets and landscapes which have been processed on lith film in seven to eight different phases.

In the same way the musical material has undergone several stages of a build-up process of corrosion, fragmentation and then a rebuild process.

The overriding form structure with its firm logic has been altered in the same manner.

"FRACTAL" was composed at the EMS studio in Stockholm, the essential material coming from Vl, Vla, Vlc, Cb.

Analogue multi-track studio with Buchla synthesizer.

Digital Studio: PDP 15/IMPAC

Digital/analogue transformation: VAX-11/fortran, chant (FR IRCAM)

Yamaha DX 7 synthesizer

"FRACTAL" was commissioned by the National Bureau of Concerts in Sweden 1983.

Rolf Enström/Thomas Hellsing