DIEM Studio Report

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I Abstract: DIEM, The Danish Institute of Electroacoustic Music, is Denmark's national center for electroacoustic music. DIEM is an independent, non-profit organization whose purpose it is to assist in the production, teaching, research and performance of all styles and forms of electroacoustic music in Denmark. The institution, which is funded entirely by the Danish Ministry of Culture, opened officially in March 1987. The staff includes a full-time artistic and administrative director, a full-time audio technician, a full time computer programmer and a secretary.

This report is a description of the facilities and recent activities at DIEM.

II Location: DIEM is housed in the concert center of Denmark's second largest city, Aarhus. The decision to place the studio in Aarhus was made for two reasons: 1) the concert center already had a complete 24-track analog recording studio and 2) Aarhus is a culturally active city with a strong contemporary music tradition including the annual NUMUS festival and the '87 ISCM festival. The concert center, consisting of a symphony hall and a chamber music hall, is owned and operated by the city of Aarhus, DIEM, which is a national institution, is leasing space (from the concert hall). The center also hosts the Aarhus Symphony Orchestra and The Danish National Opera. The studio itself consists of (without) 60 square meters each, which were designed as a recording studio and control room when the concert hall was built a few years ago.

III Equipment: The studio is currently operating 24-track analog recording equipment with TELECOM noise reduction and a 28-24 mixing desk as well as 4-channel and stereo master recording equipment. There are direct audio links with both concert halls for live recording and playback. This equipment as well as numerous effect units were already installed in the studio before DIEM moved in, enabling the institute to concentrate its financial resources on the purchase of synthesis equipment, computers and PA equipment. These purchases include a wide range of commercially available MIDI equipment, such as a Kurzweil 250, Emulator 2+ HD, Oberheim Xpander, Yamaha TX8-16 and TX802, Farlight Voice Tracker, a powerful 4-channel DAK PA system, and several Macintosh (plus, SEIO & Macintosh IIx with Digidesign's Sound Tools 16-bit ADA converters and recorder card) and Atari computers with a lot of commercially available software and programming languages such as MIDI, LISP, FORB, CMSL and Pascal. Recent acquisitions include a Audio Frame digital audio work station with 16 inputs and 8 outputs, 32 channel digital mixing with complete automation of faders and filters, a 16-voice sampler with 14 megabytes RAM, 4-channel hard disk recording and a 1.2 gigabyte disk. Purchase of a NeXT computer is planned for the near future.

IV Production: Studio time is made available to composers of all types of electroacoustic music regardless of their artistic background or stylistic orientation and there is no charge for working in the studio. For more projects an audio technician is also provided. The 24-track recording studio is of course attractive for work in the tape medium, and many tape pieces have been produced in the past two years. A short description of a few works produced at DIEM follows.

Wayne Sigel: Cobra A 20-minute 4-channel piece premiered at the NUMUS festival in May 1988 and also performed at Bourges, iCMC 1989 and ROSTRUM in Stockholm. The sound material is derived mostly from the human voice processed using the Karplus-Strong algorithm and cross-fading to create hybrid instrumenta between sung vowels and plucked string instruments.

Ivar Froumborg: A Pattern of Timeless Music A 4-channel piece commissioned by DIEM, premiered at the Aarhus Computer Music Festival and performed at the 1989 Stockholm Electronic Music Festival. The 20-minute work utilizes mostly FM synthesis. Each of the five main sections is constructed around a particular microscopic interval.

Jørgen Placer: Passager A 4-channel piece by one of Denmark's pioneers in the field of electronic music was commissioned by DIEM for premiere at the Aarhus Computer Music Festival, iCMC GLASGOW 1990 PROCEEDINGS 419
"Fuzzy": Electronic Garden and Surroundings: A 4-channel piece by a leading figure in Danish electronic music and film music commissioned by DIEM for the Aarhus Computer Music Festival.

V Interactive Works: There has been a great deal of interest in live electronics and DIEM has provided technical and financial assistance in several projects involving interactive systems.

Bjorn Lovesen, Nachspiele: A work for piano and live electronics commissioned by DIEM and premiered at the NUMUS festival in 1988. A Fairlight synthesizer is used to trigger a sampler from the piano so that digitally altered piano sounds can be combined with the live piano.

Svend August Johansen, Ivar Poulsen, Fuzzy and Wayne Sigel: Notre Dame: A collaboration between four composers using four computers and numerous synthesizer modules. The software was written by Svend Johansen. Performances include the Glyptotek Museum in Copenhagen, Louisiana Museum near Copenhagen, Aarhus Computer Music Festival and the ICIMC in New Orleans.

Morten Carlsen: Noise Center: An interactive computer music piece by an experimental jazz saxophonist which was premiered at the Aarhus Computer Music Festival by the Derge-Becker-Carlsen Trio. The software was written for the Macintosh in HIMS (Hertford).

Svend August Johansen: Shadow Dance: A work for chamber ensemble and interactive computer music system was commissioned by DIEM for premiere at the Aarhus Computer Music Festival.

Wayne Sigel: Aarhus by Art: An installation involving 11 video machines with 11 portraits of local artists. The portraits consist of examples of the artists' work with an occasional interview. The music is produced by a real-time algorithmic composition program which responds in various ways to the voices of the artists on the video tapes by means of a Roland PM-16 and MIDI devices.

Wayne Sigel: String Quartet No. 2: A work for string quartet and computer commissioned by the Kronos Quartet and the Danish Radio to be premiered in Copenhagen on October 28th, 1990. Pitch and amplitude tracking are used to follow the tempo of the performers.

VI Teaching: Although DIEM is an independent organisation, it works in close cooperation with other Danish institutions. Studio 51 has been made available to The Royal Academy of Music and the University of Aarhus for research projects and classes in electroacoustic music. An annual two-week summer workshop in electroacoustic music has also been implemented. The workshop covers analog synthesis, FM-synthesis, sampling, MIDI programming and studio technique.

VII Concerts: Concert activities have included involvement in the 1988 NUMUS festival in Aarhus, with the theme "Music and Technology". DIEM sponsored seven concerts at this festival, including guest performances by Clarence Barlow, Michel Waltz and Alvin Lucier. A casual concert series with tape music entitled "Electronic Lunch" was also initiated during the festival. DIEM also assists organisations in Denmark by providing equipment and technical assistance for concerts with electroacoustic music.

DIEM organised the Aarhus Computer Music Festival between August 29th and September 1st 1989. The theme of the festival was composition on small computers and guest composers included George Lewis, Magnus Lindberg and Trevor Wishart. The festival featured 9 concerts and 10 lectures including a chamber music concert featuring works by Magnus Lindberg, Iannis Xenakis, John Chowning and performances by Xavier Chanut, Nevenka, George Lewis, the Derge-Becker-Carlsen Trio and a complete performance of Trevor Wishart's Vox Cycle by Electric Phoenix.

In January 1990 DIEM took initiative to establish a Nordic Computer Music Festival. The festival is to be held in one of the Nordic countries each year. The first Nordic Computer Music Festival will be held in Stockholm in August/September 1991.

VIII Conclusion: In three years DIEM has established itself as a central cultural institution in Denmark. The 24-track analog recording studio and wide range of MIDI equipment and commercially available software have already supplied composers with some useful musical tools. The recent purchase of an Audio Frame digital audio works station has greatly expanded these possibilities. Goals in the near future include helping composers extend and complement these tools by helping them develop software for interactive MIDI systems as well as software synthesis.