The Virginia Center for Computer Music

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1. Overview

The Virginia Center for Computer Music (VCCM) is located at the University of Virginia in Charlottesville, VA. It is a unique facility that offers a wide range of possibilities for both composer and developer. The Center has recently seen major renovations and upgrades. Having evolved from a primarily Next/Mac platform, the VCCM now offers state of the art Linux and G4 based systems that support various types of instruction, research and composition. Current areas of development include multichannel digital audio, real time open source sound synthesis, interactive computer music, and multimedia. The Center promotes a creative atmosphere, providing a wide variety of tools to aid the engineer, programmer and composer.

2. History

The Virginia Center for Computer Music (VCCM) was founded in 1988 by Professor Judith Shatin. Early development at the VCCM included a collaboration between Shatin and systems engineer Pete Yadowsky on the NeXT-based HACK (Hierarchical Audio Construction Kit). Beetles, Monsters and Roses for chorus and electronics for the San Francisco Girls Chorus, and Elijah’s Chariot for string quartet and electronics, commissioned by the Kronos Quartet were the results of this collaboration.

Alicyn Warren and John Gibson joined the faculty from 1994 to 2000, Gibson serving as lecturer during this time. Warren developed a multimedia production focus at the VCCM creating, among other works, her Molly which was awarded first prize at the 1999 Bourges International Music Festival. A CD of music from the VCCM was released on the Centaur Label CDCM vol. 29.

David Topper joined the VCCM as Technical Director in 1997. He brought with him an extensive background in Open Source software development and as a result expanded the lab facilities to include a Linux network. After significant renovations to the VCCM lab, Topper and John Gibson collaborated together on a multichannel version of RTcmix presented at the SEAMUS 2000 conference. Topper’s subsequent work has also involved the creation of prototype workstations for computer audio (PAWN and SPAWN: Portable and Semi Portable audio workstation) presented at the 2000 International Computer Music Conference.

Matthew Burtner, from Stanford’s CCRMA, joined the faculty in 2001 bringing a new level of interest in interactive computer music performance, alternate controller research, and ecoacoustic environmental sound composition. Burtner is the designer of the Metasaxophone instrument, a modified acoustic saxophone with numerous controllers linked through an on-board computer microprocessor used to control interactive computer music.

3. Current Facilities

The VCCM currently offers one large "VCCM Lab" / classroom facility and three single user studios for a wide variety of research. The VCCM Lab is home to four G4 Macintosh and six PC Linux workstations. All machines are linked to a central file server to enable easy file transfer and storage between a wide variety of applications. Macintosh computers run a variety of applications ranging from Digital Performer, MAX/ MSP and Supercollider, and a variety of other applications including Mac OS X. All Macintosh computers also have a wide variety of outboard MIDI hardware including alternate controllers such as a Max Matthews radio baton and an array of commercial controllers.

Slackware Linux based machines run RTcmix, SnD, Audacity, Csound, MXV, Pd, and CLM. Audio in the VCCM Lab is routed through Mackie (1604vlz and 1202vlz) mixers into Yamaha amplifiers and JBL monitor speakers. The space also has built in projection capability to aid in multimedia and classroom presentations.

The VCCM also offers three single user studio spaces for individual work and development.

A Linux-based multichannel studio, "Studio A", is home to the first Portable Audio Worstation (PAWN) system based on a multichannel Pentium III
computer, RME Digi96 audio card and Alesis ADAT all routed through a Spirit 328 digital mixer which sends audio to Haifler amplifiers into eight Tannoy Reveal monitor speakers.

A Macintosh based studio, “Studio B” houses an 800mhz G4 linked to a Mackie 1604vlz mixer. The studio is also home to a rare vintage ARP 2500 analog synthesizer. Audio is output via Haifler amplifier and Tannoy Series I professional monitor speakers.

The MinMax Lab is the latest addition to VCCM facilities. Set up by Burtner, it was designed to facilitate the development of new hardware controllers to meet the needs of a growing focus in interactive computer music development. It is a space where users can solder together circuit boards, build microphones, and link them all to digital and audio hardware.

4. Current Research

Development at the Center continues on RTCmix and video production. Newly completed musical projects include Shatin’s Grito del Corazon for ensemble, video and electronics in collaboration with videographer Katherine Aoki, and Singing the Bluering for orchestra and electronics; and Burtner’s Snowprints for ensemble, electronics and video, and Polyrhythmicanca for ensemble and multichannel computer-generated click track.

Burtner has also developed a new course on interactive media and organized a student-based computer music ensemble, MICE (Music for Interactive Computers Ensemble). Dave Topper’s work continues to revolve around RTemix, expanding on previous multichannel research. His new graphical interface GAIA, offers a powerful and flexible application for interactive performance.

Every year, the VCCM presents at least two electro-acoustic performances: Technosonics and Digitals. The former, normally in the Fall, brings performers from around the world to Charlottesville. The latter, normally in the Spring, is based primarily around student work done the previous year. Both make full use of the VCCM’s multichannel playback system in beautiful Old Cabell Auditorium.

The VCCM currently supports the following courses at the University of Virginia (Courses in Composition and Technology):

MUSI 339 Introduction to Computers In Music
MUSI 435 Interactive Media
MUSI 440 Computer Sound Generation and Multichannel Digital Audio
MUSI 443 Sound Studio
MUSI 336 Composition Materials and Techniques
MUSI 445 Experimental Music

In addition, a new PhD program in Composition and Computer Technologies (CCT) is beginning in the Fall of 2002 with a new class of students entering.