Collage: Sound Colors Installation Software

Mara Helmuth

College-Conservatory of Music
University of Cincinnati
Cincinnati, OH 45221-0003
helmuthm@ucunix.san.uc.edu, mara@meowing.ccm.uc.edu
http://meowing.ccm.uc.edu/

Abstract

Collage is a NeXTstep Objective C application written to create interactive installation works. The audience controls stochastic windowing and mixing of soundfiles in real time. The program receives slider input from the listener on how loud, long and frequent to make the sound windows from each type of sound, as well as how much variability to introduce. Sounds can be set up uniquely for each performance. In the Sound Colors installation version, which ran at the 1995 SEAMUS conference, four modes are possible: a concrete, draconesque, melliptical and evoViola. Each mode describes the synthesis or processing techniques used to create the source sounds, or their mood: sampled acoustic sound, fierce granular synthesis, elliptically filtered and processed sound, and granular sampling of violin sounds. The audience, or residents of this sound environment, can choose and modify the shifting sound color combinations.

1 Introduction and Background

Using the computer to mix sounds live has been implemented with MIDI control of samplers, with the IRCAM Signal Processing Workstation, and other systems. In any system, the amount of control over the sound and the length of a sound which can be stored are limitations. In this project the goal was to maintain some of the freedom found in non-real time synthesis and processing by using sounds created on the computer, while setting up a program which could mix these complex sounds in real time for installations or improvisations. The program was given a source set of sounds and a strategy for mixing. The user was able to control what types of sounds were selected, and some aspects of how they would be mixed. Peter Velikonja had created Objective C StreamPlay and MoxPlay objects for his programs, which I used as a basis for Collage.

2 Collage

The Collage program includes a NeXTstep interface which participants interact with by moving sliders and toggling switches. The switches indicate what types of sounds should be raised. The slider input requests that the sound windows (selections of each file to be played) will be of a certain duration, amplitude, and interspersed with a certain duration of silence. Sliders for amount of variability for each of these parameters influence how regular or irregular one windows will be. The window time slider controls overall density of events. The use of probabilities, and a large number of source soundfiles increase the likelihood that the resulting music will be unpredictable and interesting. As "audience" members interact with the program, they have a particular interest in hearing how their choices affect the music.
3 Sound Colors

For the SoundColors installation, I set up seven sets of sounds I had created for other compositions (Chimepops, Metaphis, Evolutions and Dragon of the Nebula). These included recorded acoustic sounds, cymbals, bamboo beads, kazoos, and bells, granularly sampled violin sounds, granular synthesis sounds, and sounds processed with windowing, filtering, and room simulation. The four modes may stand alone or be mixed together for new combinations. Fig. 1 shows the interface. This version ran at the Society of Electroacoustic Music in the United States 1995 conference, Texas A&M University's Sonic Explorations series and the College-Conservatory of Music at University of Cincinnati's Music Circus 1996.

4 Conclusion and Future Research

The program allows interesting sequences of sound mixing, although it can only actually play at most four soundfiles at once on the NeXTstation 68040. The selection of source sounds and windowing parameters is important. This program will port to faster platforms including the Silicon Graphics workstations. A version of the program will be placed on the internet website which can load a user's set of soundfiles, so that one can create her or her own installations.

Fig. 1 College Interface used in the Sound Colors Installation.

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