

Computer-Effective Mean of Technical Music

Dr T.C.Koul
A.P.G.University Shimla,
Himachal Pradesh, India.

Abstract: Computer music is the application of computing technology in music composition, to help human composers create new music or to have computers independently create music, such as with algorithmic composition programs. It includes the theory and application of new and existing computer software technologies and basic aspects of music, such as sound synthesis, digital signal processing, sound design, sonic diffusion, acoustics, and psychoacoustics. The field of computer music can trace its roots back to the origins of electronic music, and the very first experiments and innovations with electronic instruments at the turn of the 20th century.

Keywords—Computer, Music, Recording studio, Technology, Synthesis

I. INTRODUCTION

Technology has followed a path parallel to the development of music. From early pipes with cross holes, embouchures and reeds to the fine mechanics of 19th century pianos and wind instruments, passing through medieval carillons and renaissance string instruments, music has never been shy about incorporating the latest developments of technological discoveries.

This is especially true for contemporary electronic and computing devices, because, if the computer can be seen as the ultimate instrument capable of reproducing any known sound and of generating new ones, it is also a machine for the *manipulation of symbols* that can assist a composer or a musicologist in practical activities and in theoretical studies. And while electronic computers are a relatively modern invention, the idea behind algorithmic procedures and programming is probably as old as mathematics and known in the ancient worlds of Egypt, Babylon, Greece.

II. USES OF COMPUTER IN MUSIC

Computers are great for word processes and Internet surfing -- but in this digital age, they also serve essential functions for musicians and producers both professional and amateur. If you learn how to harness the recording, mixing and mastering capabilities of your computer, it can become your complete home recording studio.

(A) Recording

With the right configurations, you can use your home computer to record music with the crystal clear quality of a studio environment. With the help of recording software like Audition, Cubase, Logic and Pro Tools, you can capture recordings one layer at a time just as you would in a studio environment.

(B) Mixing

Amateurs and professionals use digital recording software to mix music, in addition to recording. The software allows you to add touches like reverb, echo, distortion and vocal processing -- and adjust your volume and pan settings which is the left, right or center placement of individual recordings. DJs and remix artists use the software to create new versions of popular songs.

(C) Mastering

Mastering is similar to mixing, but involves putting on the finishing touches. Some engineers specialize in music mastering, and all major music releases undergo a professional mastering process, in order to bring multiple songs into harmony with one another. They achieve this by matching the volume levels of songs and by adjusting the audio frequencies -- a process known as equalization or "EQ" -- so that the individual attributes like bass, vocals and guitars sound consistent from one song to the next. You can perform some of these actions using the same software that you would use to record, but specialized mastering software also exists.

(D) Live Backing

Computers are beneficial for more than just music creation. They can also prove useful for music playback. For example, if you want to perform at a coffee shop with a guitar, and you want to use pre-recorded accompaniment for drums, you can save the recordings on a laptop, connect the laptop to a mixing board or public alert system and transmit the recorded drums while you play your guitar in real

time. Professional artists use pre-recorded backing tracks to fill in the musical gaps during a live performance.

(E) Promotion and Sales

In addition to music creation and playback, computers allow musicians to promote their music and even sell it to consumers digitally. Social networks like MySpace, Facebook and Twitter allow musicians to reach new fans, make important announcements and promote new songs, while avenues like Amazon, Napster and iTunes allow artists to profit by selling songs and albums in an instantly downloadable format

(F) Recording Studio

The creation of music is a great and fulfilling experience. It is something that should be shared with as many people as can be reached. In this day and age, the best way for a musician to share his/her music with the masses is to make a recording. As a musician, it is easy to see the role of the computer and its great use as a tool in the recording studio. The computer is revolutionizing the way a recording studio works. Most of today's major recording studios are centered around the computer. The computer is now being used to control most aspects of the mixing process, it is used to create and alter sounds in conjunction with instruments, its memory is invaluable for multi-track recording, and it can be used as a musical instrument on its own. There are many programs available for the recording studio and there are many more in store for the future. The computer is probably the greatest tool that a recording studio has access to and its role there is ever increasing.

III. COMPUTER TECHNOLOGY IN INDIAN MUSIC

Computers have made it possible to analyze Indian music and Indian musical instruments in a way that was never possible before. Spectrum analysis have made it possible to look closely at the sounds of Indian musical instruments and even at the influence that spectral components have upon the development of scale structure and intonation. Computers have been used on several occasions to clarify aspects of music theory. It has been used in areas of intonation, musical structure, and virtually every aspect of music theory. We have seen that electronic technology has been used to produce a number of educational aids. The most common is the tal mala which generates drum beats and the surpeti which generates the drone. The computer has emerged as a major tool for both research, education, and in desktop publishing. With a clear concept of the present usage, we may speculate as to what future applications may be.

IV. COMPUTER SOUND SYNTHESIS

The production of electronic sounds by digital techniques is rapidly replacing the use of oscillators, synthesizers, and other audio components (now commonly called analogue hardware) that have been the standard resources of the composer of electronic music. Not only is digital circuitry and digital programming much more versatile and accurate, but it is also much cheaper. The advantages of digital processing are manifest even to the commercial recording industry, where digital recording is replacing long-established audio technology. Increasingly, attention there has been given to all aspects of computer processing of music, including composition, sound analysis and synthesis, graphics, and the design of new electronic instruments for performance and pedagogy. It is a spectacular demonstration that electronic and computer music has come of age and has entered the mainstream of music history.

V. CONCLUSION

In conclusion, science has brought about a tremendous expansion of musical resources by making available to the composer a spectrum of sounds ranging from pure tones at one extreme to random noise at the other. It has made possible the rhythmic organization of music to a degree of subtlety and complexity hitherto unattainable. It has brought about the acceptance of the definition of music as "organized sound." It has permitted the composer, if he chooses, to have complete control over his own work. It permits him, if he desires, to eliminate the performer as an intermediary between himself and his audience. It has placed the critic in a problematic situation, because his analysis of what he hears must frequently be carried out solely by ear, unaided by any written score.

Recent times have seen the development of two significant aspects of computing technology: the availability of inexpensive, good quality sound processors and synthesizers, which have bridged the gap between ancient subdivisions of computer music, one preoccupied with sound synthesis, and the other with algorithmic and musicological processes - thus allowing immediate reproduction of computer generated music; and the emergence of *standards*, such as MIDI and SMDL, that allow easy encoding, reproduction and exchange of musical data.

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