

Computational Music and Music Production

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Abstract- Music production is the process of creating a recorded music project. A record producer usually handles music production, managing every aspect. That can include being a critical part of the creative process, such as deciding what instruments are used and contributing to song arrangements. Since music production plays a vital role in the quality of the final product, it can make or break the success of an album. Record producers give recommendations on which songs are best to record; manage financial aspects of recording; hire outside performers, if needed; and work with sound engineers in the recording process. A computer is a machine that can be instructed to carry out sequences of arithmetic or logical operations automatically via computer programming. Modern computers have the ability to follow generalized sets of operations, called programs. These programs enable computers to perform an extremely wide range of tasks. In modern Era music Production has become a very big profession in the field of Music. In this paper I have tried to focus on the music production as well as the important role of computer applications interems of Music. Although to run music production does not need to have the knowledge of computer but all the music related activities totally depends upon computer and this is what I trying to find out in this paper.

Keywords-Music, Computer, Technology, Production.

I. INTRODUCTION

Music technology

Music technology is the study or the use of any device, mechanism, machine or tool by a musician or composer to make or perform music to compose, notate play back or record songs or pieces; or to analyze or edit music. The earliest known application of technology to music was prehistoric peoples' use of a tool to hand-drill holes in bones to make simple flutes. Ancient Egyptians developed stringed instruments, such as harps, lyres and lutes, which required making thin strings and some type of peg system for adjusting the pitch of the strings. Ancient Egyptians also used wind instruments such as double clarinets and percussion instruments such as cymbals. In Ancient Greece, instruments included the double-reed aulos and the lyre. Numerous instruments are referred to in the Bible, including the horn, pipe, lyre, harp, and bagpipe. During Biblical times, the cornet, flute, horn, organ, pipe, and trumpet were also used. During the middle Ages, music notation was used to create a written record of the notes of plainchant melodies.

II. COMPUTER MUSIC

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 musicII, and the very first experiments and innovations with electronic instruments at the turn of the 20th century.

III. HISTORY OF COMPUTER MUSIC

The world's first computer to play music was the CSIR Mark 1 (later named CSIRAC, which was designed and built by Trevor Pearcey and Maston Beard from the late 1940s. Mathematician Geoff Hill programmed the CSIR Mark 1 to play popular musical melodies from the very early 1950s. In 1950 the CSIR Mark 1 was used to play music, the first known use of a digital computer for the purpose. The music was never recorded, but it has been accurately reconstructed. In 1951 it publicly played the "Colonel Bogey March" of which only the reconstruction exists. However, the CSIR Mark 1 played standard repertoire and was not used to extend musical thinking or composition practice, as Max Mathews did, which is current computer-music practice.

The first music to be performed in England was a performance of the British National Anthem that was programmed by Christopher Strachey on the Ferranti Mark 1, late in 1951. Later that year, short extracts of three pieces were recorded there by a BBC outside broadcasting unit: the National Anthem, "Ba, Ba Black Sheep, and "In the Mood" and this is recognised as the earliest recording of a computer to play music as the CSIRAC music was never recorded. This recording can be heard at the this Manchester University site. Researchers at the University of Canterbury, Christchurch declicked and restored this recording in 2016 and the results may be heard on SoundCloud.

IV. MUSIC PRODUCTION

Over the past few decades, electronic music and its respective genres have revolutionized the music industry by creating new styles of music that have evolved the aesthetics of the popular songs we hear today. The process of composing today's music via a computer and software has become infinitely more efficient compared to traditional recording, which mainly uses acoustic instruments and "old-school hardware". The process of composition has been stream-lined and revolutionized over the recent years, thus opening more doors for artists' originality and creativity.

The history of electronic music is a very scattered and complex history. The movement all started in 1951 at the University of Manchester, where on a Ferranti Mark I computer, a computerized version of "Baa Baa Black Sheep" and "God Save the Queen" were recorded. The next milestone was in 1957, when the first program was written to make music. Max Mathews wrote a program called "MUSIC" at Bell Labs, USA. The program was used to create a 17 second musical piece that was performed in New York City on an IBM 704 Computer. In 1983, the world of computer-aided music production was revolutionized by the invention of MIDI. MIDI (Musical Instrument Digital Interface) was a protocol that enabled computers and synthesizers and other hardware equipment to communicate with each other. This protocol allows producers to connect all devices to their computer and control virtual parameters within the native software. MIDI carries event messages that specify notation, pitch and velocity, control signals for parameters such as volume, vibrato, audio panning and cues, and clock signals that set and synchronize tempo between multiple devices. These messages are sent to other devices where they control sound generation and other features. This data can also be recorded into a hardware or software device called a sequencer, which can be used to edit the data and to play it back at a later time. By the end of the 1970s, electronic musical devices were becoming increasingly common and affordable in North America, Europe and Japan. Early analog synthesizers were usually monophonic (capable of playing only one note at a time), and controlled via a voltage produced by their keyboards. Manufacturers used this voltage to link instruments together so that one device could control one or more others, but this system was inadequate for control of newer polyphonic and digital synthesizers. Some manufacturers created systems that allowed their own equipment to interconnect, but the systems were incompatible, so one manufacturer's systems could not synchronize with those of another. The invention of MIDI was followed by the invention of Virtual Studio Technology or VST in 1997. VST allows external hardware to be virtualized in Software, which means no more bulky rack equipment and the ability to take your equipment with you anywhere you go. In 1999, the first VST instrument was made. The first VST instrument, Neon, is a very basic analog synthesizer. This opened doors to literally computerize any studio instrument in existence.

V. CONCLUSION

Computer science and Production go hand in hand! It is almost impossible to meet a producer who does not use some form of computer science from the software they use to make their beats to the way they send and receive new music from artist. Also, computer science has made it more accessible to a wide range of producers being that the equipment is more affordable and available to producers just starting out. Without these advance in computer science it's unlikely music production would be where it is today!

VI. REFERENCES

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