Research on the trend and innovation of electronic music production

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Abstract: *Nowadays, the level of science and technology in our country gradually develops, and the corresponding electronic music production is experiencing rapid progress. At present, people's demand for the quality of electronic music production is higher and higher. It should not only give people a good sense of hearing, but also be able to combine with high and new technology for application. Throughout the evolution of Chinese electronic music production, it is not difficult to find that it has experienced a process of gradual improvement of technology and is developing towards the direction of computerization. This paper will briefly introduce the evolution process of electronic music production and traditional technologies such as wave table synthesis, addition synthesis, subtraction synthesis, sampling synthesis, modulation synthesis and other sound synthesis methods, and briefly describe the application of the new ROLI Seaboard technology in electronic music production.*

Keywords: *electronic music production; the process of evolution; computer; trend*

1. Introduction

Through the comparison of electronic music works in different periods, we can find that it is undergoing great changes, from "concrete music" to "tape music", and is gradually moving towards "computer music", which realizes the further perfection of music works and meets people's aesthetic requirements.

2. The production technology of electronic music

Electronic music is a combination of modern electronic science and technology and traditional music. In the process of in-depth research and analysis of electronic music, we find that the production techniques of electronic music determine its music style, electronic music language pays attention to the word "integration", electronic music works permeate the creator's creative ideas and want to show the artistic conception, each electronic music work also contains unique creativity and ideas. The creativity and musicality of electronic music both reflect "integration", which is also the fundamental core of the integration of technical and musicality of electronic music works, and the integration of traditional music and modern electronic technology.

First of all, electronic music production pays attention to the use of multiple production techniques. Under the new situation, digital and analog platforms are used in electronic music production. Analog technology platform and digital platform are the core technologies of electronic music production. Secondly, electronic music production pays more attention to the design of multiple sound Spaces. Electronic music pays more attention to the multidimensional effect of space, and the production needs to fully consider the various channels and levels of music, aiming at using technical means to create a stereo effect. Finally, electronic music production pays more attention to the embodiment of traditional composition technology.

3. The development of electronic music production

3.1 Early electronic music production

An important technical support for the emergence of electronic music production lies in the invention of recording technology. Subway Etude is the first piece of electronic music production in human history, and its appearance is a milestone in the history of electronic music in the world. With

the continuous development of science and technology in our country, the production of the electronic music of our country has experienced three major stages. But in the early stage of the production of the electronic music, because the level of technology is not perfect, it has been hindered in a great extent the development of music. When sound is recorded, only aluminum foil plate can be relied on. "Symphony for One" co-created by Fisher and Pierre, the founders of electronic music, is a representative work of the specific music era. It realizes the further expansion of sound materials, and transforms human voice into true sound, ultra-high frequency and so on by accelerating the aluminum foil disc, which makes the work more aesthetic. It lays a solid foundation for the development of electronic music production in the future [1].

3.2 Electronic music production in the era of magnetic tape

The technology of electronic music production in the era of magnetic tape has achieved a qualitative leap compared to the concrete music in the early days. All these advances depend on the emergence of tape recording technology, which is mainly used to record music, so as to achieve the production of music. In addition, the production of electronic music in this period not only realized the technical route of the specific music period, but also the technical processing around the sound[2]. Since the recording of sound signals by magnetic tape music is completed, it has been well used as soon as it appeared. In the middle of the 20th century, electronic oscillators, filters, modulators and other equipment appeared in the production of electronic music. The good application of these facilities greatly promoted the further development of electronic music production technology. A filter, for example, can enhance or diminish audio at any point in the sound. In the late 1970s, electronic synthesizers appeared, which can combine devices such as oscillators, modulators and filters, thus simplifying equipment facilities, simplifying intermediate links, and achieving good application of technology.

3.3 The new trend of the evolution of electronic music production

With the further application of digital equipment, digital information, computer and network have played a huge role in the field of electronic music. In the new era, electronic music production technology mainly relies on digital audio tapes to record sound in a digital way, with higher speed and more scanning times per unit of time, and the sound is clearer and more real. In the era of computer electronic music production, many new technologies have appeared. ADAT eight-track digital tape is a new way to record sound at this time. It can not only realize the characteristics of DAT recording two-track sound signal, but also record eight different voice parts, so as to ensure the quality of music is better and reduce the complicated links in the middle. In addition, the appearance of digital mixer has further improved the original tuning function and realized digital simulation. At the same time, it can also record the controlled data of different sound tracks, giving full play to its huge advantages, facilitating the synthesis and recording of electronic music production and improving the production level [3]. In the period of electronic music production, there is also a technology that cannot be ignored is the computer audio workstation, which can realize the direct recording of sound, and use software to unify the dynamic range of music, and use mouse operation to realize the software of hardware equipment. By the late 20th century, the whole process of electronic music production could be realized with only one computer. The American Polanski's work Anna has such characteristics and is a representative of it. The production process of sound cycle, acoustic change, elongated work and other technologies were completed in this way. In addition, C-Sound software can also help musicians to compose and produce electronic music. It is mainly based on acoustic principles, and the technology is similar to the function of electronic oscillators. Therefore, the application of computer to electronic music production, can coordinate the relationship between the facilities, so as to simplify the work flow, and improve the quality of music production.

4. Electronic music sound creation technique

Sound creation technique is an important technique to deal with various sounds in music creation. In the early stage of the creation of electronic music works, it is necessary to collect and acquire the original sound. In the middle stage of the creation of electronic music works, it is necessary to use digital and analog dual-platform technology to process the original sound and constantly integrate the sound effect to complete the production of electronic music works. In electronic music, attention is paid to the deformation, stretching and reversal processing of sound. Digital and analog dual-platform

electronic music processing technology can realize this series of operations, and only in this way can the combination of cultural concepts and technology of works be truly promoted. The sound processing of electronic music includes the processing of specific sounds, synthetic sounds in the laboratory, real sounds in the field and various noises. In order to show musical effects through technical means in varied sounds, it is necessary to do a good job in the processing of various sound details. Let the human voice, the sound of nature, the sound of instruments and other electronic sounds in the synthetic sound and live sound really merge. First of all, the application of technical means in the sampling synthetic sound creation is mainly synthesizer sound creation processing. For example, in Zhang Xiaofu's "Facial Makeup", sound materials are synthesized by technical means on the basis of the playing sounds of Jinghu and Allegro, which are prefabricated in advance into medium and high frequency noises as well as loud and white sounds. The continuous creation and application of synthetic sounds can highlight some distinctive and distinctive sounds in the works, so as to truly highlight the image of facial makeup in music. Secondly, the application of technical means in the process of real-time sound creation is mainly to integrate traditional forms with modern technology and promote the combination of Musical Instruments, music and noise. Taking Zhang Xiaofu's "Facial Makeup" as an example, the live sound is effectively combined with the live acoustic percussion, and the sound of keyboard, cortical instrument, brass instrument and wood instrument is effectively combined under the perfect combination background, which is fundamentally consistent with the four major Peking Opera trades of "living Dan and clean ugly". At the same time, keyboard instruments, marimba, bass marimba, xylophone, glockengimer, vibrato, wood instruments and wood fish were controlled by people on the site. The division of musical performance created a better real-time music effect on the site. At the same time, keyboard instruments, marimba, bass marimba, xylophone, glockengimer, vibrato, wood instruments and wood fish were controlled by people on the site. The division of musical performance created a better real-time music effect on the site.

5. The application of sound synthesis in electronic music production

With the increasing speed of computer processing, the ways of sound synthesis in computer become more complex and diversified. At the same time, the processing speed of mobile intelligent devices has also been greatly improved. Many music production software are designed for mobile intelligent devices, rather than using the past single means. Users can synthesize in time domain, frequency and dynamic at each stage, so that the color, reduction degree and characteristics of sound are more prominent, and the application range is wider. It is common to mix up the synths and add filters, arpeggios and sequencers, and more new timbre types will emerge through the modulation of music producers.

5.1 Sampling

The sampling is done using microphones, microphone amplifiers, analog-digital and analog-digital converters, and computers. At present, the computer and intelligent mobile communication equipment has a strong digital-analog and analog-digital conversion and power amplification, even compression function. The built-in recording function of the mobile phone is enough to deal with daily recording and some samples with low sound quality requirements. It can also take advantage of the characteristics of the mobile phone microphone for sampling. In my previous work, Carrying You, many of the samples were made using the Lewitt DGT650. It is an xy system of capacitive microphone, digital-to-analog and analog-to-digital converter, microphone amplifier in one of the multifunctional digital microphone, with its own lithium battery can power capacitor microphone, MIDI interface can be connected to MIDI control equipment. Its sampling rate is up to 96khz, and it can be directly connected to intelligent mobile communication equipment for use. It is very convenient to sample and record, and can get high quality sound.

5.2 Synthesis

In the past, various sound synthesis methods required very complex steps. Additive synthesis, for example, was originally applied to pipe organs by means of multiple ventilation plugs; In 1906 came the giant reed synthesizer, which combined the sounds of dozens of electronic audio generators to produce a superimposed polyphonic sound. Addition synthesis also has many technical applications, such as fixed waveform addition synthesis, phase factors, partial tone superposition, etc., these large amounts of calculation and complex superposition, the current intelligent mobile device computing

capacity is enough to deal with, and can be converted into sound through high quality, low cost digital-to-analog converter, played out from the speaker. Many hip-hop producers use this method because it is easy to use, portable, and can quickly produce high quality and creative material.

5.3 Production

Take mobile music production APP band as an example, it has many different sequencers and arpeggiators, which can be used to produce various types of music. Through simple manipulations such as the piano's arpeggiator function, touch the chords on the screen, you can get the broken playing method. Different instruments such as strings and guitars have this arpeggiator function, and there are a variety of musical sequences to choose from. In terms of the production of electronic dance music, the sequencer similar to pad is much simpler. It is easy to understand and diversified to play. I often use the software Gadget, which just needs to be set in each bar and input MIDI information, and then it will play completely according to the Settings. Similar to the simplified version of Live software, electronic music can be created anytime and anywhere with it, which is a very interesting experience. In addition, because the synthesizer plug-in simulates the way the hardware computes, users can learn a lot about how the synthesizer operates and how different functions change the sound.

5.4 Storage and sharing

Due to the rapid improvement of network speed and the increase of the capacity of hardware recording carrier, the capacity of mobile terminal or computer is increasing. In addition, the transmission speed is accelerating, and the emergence of many web disks and network carriers also brings convenience to the creation. Works can be stored on the web disk, so as to save the storage resources of mobile devices or computers; You can also store the sample or project files on the network disk and call them out when needed. As long as there is a network, you can use the huge storage space in the account anytime and anywhere. Through some online platforms, electronic music works can be published and distributed so that more people can hear and enjoy them.

6. The application of new electronic music production equipment

Described as the "future of keyboards," the ROLI Seaboard family of MIDI controllers has redefined the keyboard with new digital controls. It was born after founder Roland Lamb discovered that while traditional instruments are difficult to master. However, electronic instruments are expressive due to their diverse and nuanced playing techniques. Electronic instruments are easy to control precisely, but lack real-time and multidimensional control of expressive forces. The playing form of Seaboard can combine the characteristics of traditional instruments and electronic music [4]. The Seaboard Block, SeaboardRise 25, and SeaboardRise 49 are the three main products on the market that look and feel very different from traditional MIDI keyboards. They use touch-responsive surfaces instead of separate keys. It can be connected to the computer through Bluetooth or USB interface, and can also be connected to some music applications on my Phone and Pad. Its multi-dimensional touch mode provides more possibilities for the creation form of electronic music.

Seaboard products can be connected to various DAWs and mainstream software with the ROLI Dashboard app. Such as Logic Pro, AbletonLive, Cubase, Garage Band, Kontakt, Omnisphere, Max /MSP, etc[5]. Meanwhile, ROLI has also developed some host software for products. Such as Equator Player, Noise App, due to strong compatibility, users can choose the right platform according to their own use habits and preferences. Keyboard products in the Seaboard family are made of tactile silicone and support five-dimensional touch control, which is quite different from traditional keyboards in terms of control mode and playing form: Because there are multiple contact sensors inside each key, This allows the player to control Slide, Glide, Lift, Press, Strike and other dynamic effects in real time through the keyboard. Currently, music makers can choose from a variety of keyboard controllers in the Seaboard family depending on their needs: As an entry-level product of the Seaboard series, Block is the smallest and most portable. Compared with the Block keyboard, Rise 25 and Rise 49 are equipped with three touch sliders with LED and an XY touch panel on the function controller. And support for sound delay pedal input. Because Rise 49 can be played across five octaves, it is more suitable for live stage performances and professional music studios.

It has a broad prospect in the field of modern music production. Although it is more suitable for today's popular EDM music in style, it can also be used to explore more possibilities of traditional

instruments and expand the creative ideas of contemporary music producers. In addition, the Seaboard Block can be paired with one or more Blocks controllers and Studio E-dition Percussion pads via magnetic DNA connectors, allowing it to expand to a wide range of controller playing surfaces, further increasing its utility and functionality.

7. Conclusion

Chinese electronic music has gone through three stages: "exploration and initial cognition", "pioneering and entrepreneurial accumulation", "innovation and all-round development". At the beginning, people did not understand electronic music, but now, more and more people use electronic music to enhance the experience of music creation, popularize music technology and theoretical knowledge, so that more types of music can emerge and develop. With the vigorous development of the information age, digital music has become an important link in today's multimedia art. Throughout the 21st century, music creation has leapt from "music on paper" to a new era. Digital music with computer technology as the core enables music creators to extend their artistic thinking by using equipment and digital technology. Build, listen to and modify music works in real time, and create art in a variety of ways.

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