



The Beginning Of Audio Technology & Its Existence.

*Explore audio technology and
live in the world of music*



PALLIYA GURUGE KAWYA THATHSARANI



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Acknowledgment

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Contents

Introduction about the author and the e book.

Chapter 01

01. *Inception and evolution of audio technology. (past story)* 07

I. *Audio Technology and Audio Recording Technology.* 09

Chapter 02

02. *Current audio technology and its development. (present story)* 13

I. *Working together of analogue and digital in audio technology.* 15

Chapter 03

03. *The future of audio technology and its potential for endless advancement. (future story)* 18

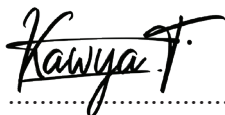
I. *Spatial audio technology is,* 19

II. *AI technology coming to the audio industry.* 20

Introduction about the author and the E book.

She is Kawya Thatsarani Palliyaguru who is writing this electronic book by putting together the information found through research on audio technology. She is a student in the field of audio engineering and music production and she is an undergraduate student at pearl bay institute studying the BTEC International Diploma at Pearson.

She likes to research technology related to this field. Due to that, she has written this e-book about audio technology. Anyone entering this field and interested in researching this field can read this e-book for free. This is Kawya Thatsarani Palliyaguru's first E-book. I invite you all to read this book.

A handwritten signature in black ink that reads "Kawya T." with a horizontal line through the middle of the letters.

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Thank you!

Author Kawya T

What is audio technology?

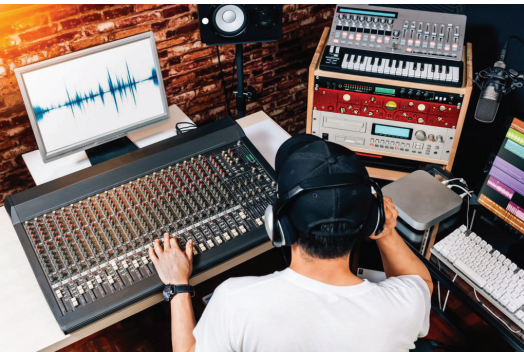
Also includes maintenance, operation, handling and mechanics of sound engineering. Simply put, audio technology helps create sounds in the world of communication and entertainment.



What are other majors in audio technology?

There are a lot of career opportunities in the field of audio technology. Many career opportunities can be found in music production, engineering, music technology, audio production, recording arts. There are also a lot of job opportunities related to this. Especially when talking about audio technology, we mostly come across audio recording technology. Also, the most basic aspect of audio technology is audio recording technology.

Audio technology, which has been developing from the past to the present, and from the present to the future, has now become a strong field that will never fall. How is audio technology progressing? What will its past, present and future be like? Let's find out about it.



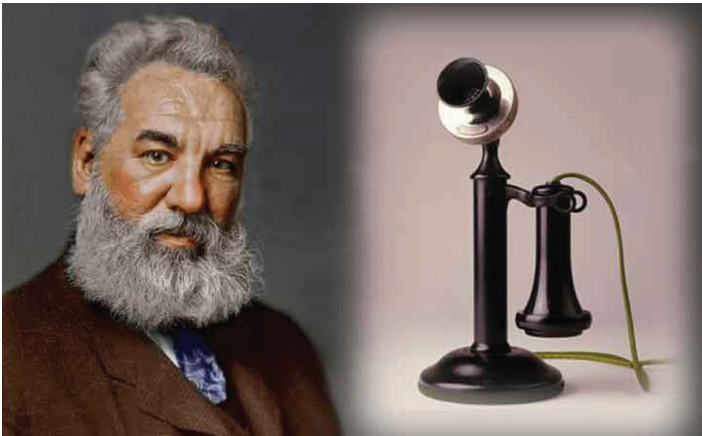
Chapter 01

Inception and evolution of audio technology. (past story)

Advances in audio technology occurred in the 1870s and 1880s, when technological devices were first used to meet the needs of the ever-advancing man. This period is known as the analog era.

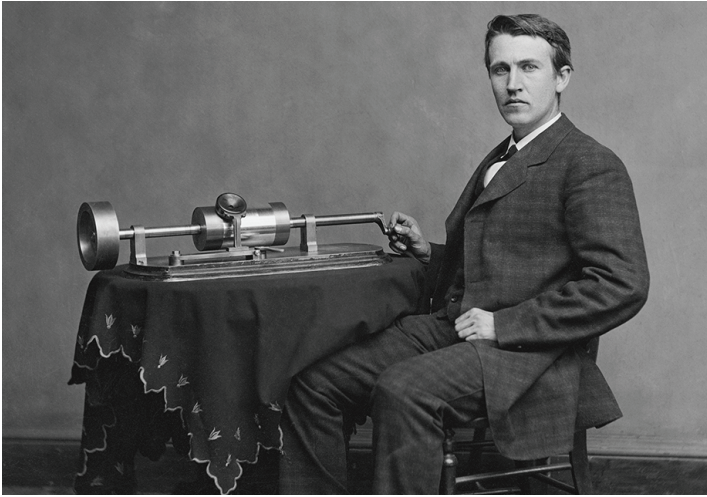
In 1875, David Edward Hughes was one of the pioneers of audio technology. He created a carbon microphone in 1875 and called it the microphone. But this has not been patented.

A year later in 1876, Alexander Graham Bell's invention of the electric loudspeaker as part of a telephone became the first patented device in audio technology.



Alexander Graham Bell

In 1877, Edison invented the phonograph, which also led to the development of audio technology.



Thomas Edison

In the late 19th century, Oliver Lodge invented the first moving-coil loudspeaker. Due to the better condition of this sound broadcasting machine, later this machine was also used in theaters.

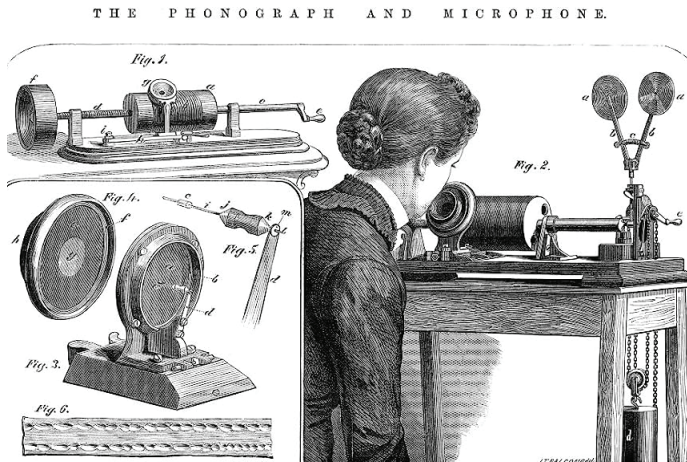


Oliver Lodge

01.1 Audio Technology and Audio Recording Technology

In 1877, after Thomas Edison introduced the device called phonograph, it was able to record and listen to sound. The work involved was very serious, where a large cone-shaped horn was used to physically gather air pressure and focus the sound waves produced by a human voice or a musical instrument, and a sensitive membrane was used on top of it, which was then connected to a scribe or stylus. A spot is scratched across the stylus due to the vibration of the membrane on the cone. A disk coated with wax or a soft metal is thus scratched.

As this was the early stage of audio technology, this device showed low efficiency. The maximum sound absorption was 250Hz to 2500Hz. Because of this, musicians and engineers were trapped in a limit. Also, this was a very serious time, labor and cost consuming affair. Therefore, the need to find another technology for this in the field arose.



The phonograph and microphone

By the middle of 1925, recording labels had started to emerge in the music industry. They always worked hard to improve recording technology. As a result of their research, sensitive microphones began to be used using electronics to capture sound. During this time, recording technology was so advanced that the frequency levels could be increased or decreased. So even the leading recording labels turned to this technology.



Electronic microphones



Improved phonograph

As recording technology advanced, however, downloadable discs were still underdeveloped. This caused a lot of trouble. If a recording goes wrong, the entire recording is destroyed. Also, even though it was the same music categories (Takes), it had to be recorded on a large disc size. Although it was possible to preserve the discs, problems such as mold binding arose. This audio recording technology could not be used for something like group singing. Due to such questions, it was possible to take another step forward in this field.

Later, magnetic wire recording began for the first time. The technique was invented in the 1930s, but was somewhat obscured by World War II. This method was quite successful. But the engineers had to put in a lot of effort in reproducing and editing the recordings made in this way. This magnetic wire is made of stainless steel, and during recording the tape is rapidly passed through a recording head where each point along the tape is marked according to the intensity and polarity of the audio signal. This was an advanced time in recording technology, but the most difficult thing was that a very large amount of magnetic tape was needed, even if it was a very short series of sounds.



Magnetic wire recorder

However, during this time, magnetic recording improved further with the advent of multi-recording capabilities. Here the magnetic tape is split into two parallel parts and fed into the recording head parallel to each other. Two tracks were quickly recorded using this method. This method spread rapidly in the 1950s. This made it possible to record signals from two or more microphones. In the mid-1960s, music such as pop and jazz was released in mono, but later such music was released in stereo due to this system. Later this magnetic recording technology reached the level of advanced audio recording that could record 4 tracks.

Along with the technological advancement that happened day by day, the computer technology also became unbelievably sophisticated. As a result, almost all aspects of the music industry became technological. Digitization in the music industry started with the same time that all the primary methods that we talked about above started to be technologicalized.



Improved magnetic wire recorder

Chapter 02

Current audio technology and its development. (present story)

When it comes to audio technology, we all know that this field has been developing for a long time. Beginning in the 1870s, the field's journey has now evolved to suit the modern world. The analog era has ended and the field has entered a digital era.

According to available information, there are various information and opinions about the first digital audio recording technology. Among them,

The first digital audio recorders are believed to be reel-to-reel tapes introduced by companies such as Denon (1972), Sound stream (1979) and Mitsubishi. They used PCM recording technology.



Reel to reel tape recorders

It is also believed that the first commercial digital recording was released in 1971.

Also in the 1960s, the BBC is also reported to have experimented with digital audio. By the early 1970s, researchers at that time had created a recorder consisting of 2 channels, and in 1972, their invention was used in broadcast stations' sound recording studios.



Two channel sound recorder.

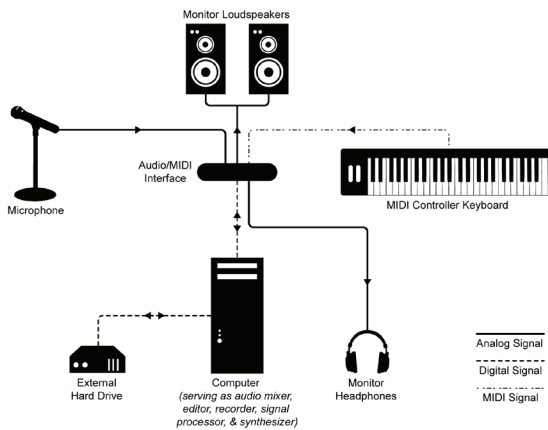
After significant advances in digital audio technology in the 1970s and 1980s, it invaded the audio engineering sector and the entire music industry in the 1990s and 2000s. The earlier analog methods gradually fell out of use because of the much less time, effort, and cost involved. But it is not completely. At that time, the sound engineers had to use some analog methods.

02.1 Working together of analogue and digital in Audio technology

This is how analog and digital work together.

In a digital audio system, an analog electrical signal that represents sound is combined with an analog-to-digital converter (ADC) to convert it into a digital signal. For this purpose, usually, Pulse cord is used. Using a computer or other audio playback recording devices and tools, these signals could be edited, modified, re-listened to, and made infinitely more recordings identical to the original recording without damaging the original recording.

Also, a digital signal can be converted back to analog. It is sent through an audio power amplifier and finally to the speakers. The digital audio system can be stored, rearranged, cut and added to any occasion.



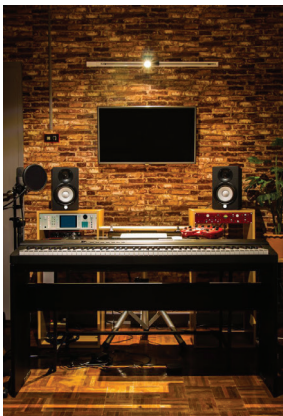
Analog and digital work together

Thus, we can see that the audio recording technology has gradually progressed today, using the most advanced technologies. In the analog era, this task, which required a huge amount of space, has now advanced enough to be carried out in one's room.

The equipments that were physically necessary in the analog era have now become one of the software in the computer. At that time, it was necessary to perform each instrument with the same instrument, but today there is midi technology for that.



Production softwares



Room studio

When the present.

Computer, DAW, Audio Interface, Microphones, Headphones, Studio Monitors, Cables, Microphone Stands, Pop Filters, Reflection Filters, Amps, Direct Box and other equipments can be used to produce the desired designs in less time with a higher finish than the analog method at that time.

Today, audio technology in the music industry has greatly advanced. It is the technological advancement in the audio technology that has greatly influenced the music industry to where it is today. It is a truth revealed to all of us that even commercially, this field has come this far because of the technological achievements.



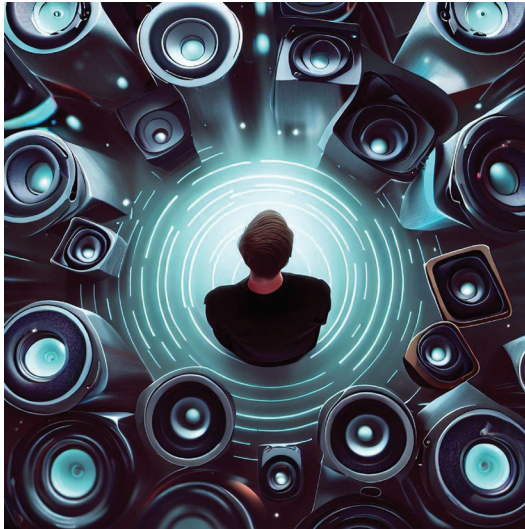
Studio equipments

Chapter 03

The future of audio technology and its potential for endless advancement. (future story)

The audio technology industry has moved from the analog era to the digital era, and it continues to evolve endlessly. Due to the advancements in every field and the modern man's love for technology, all the fields are developing unimaginably.

Spatial audio is something in audio technology that we can all experience in the future. Spatial audio is an emerging technology that allows sound to be localized in three-dimensional space. This can produce more natural and realistic audio.

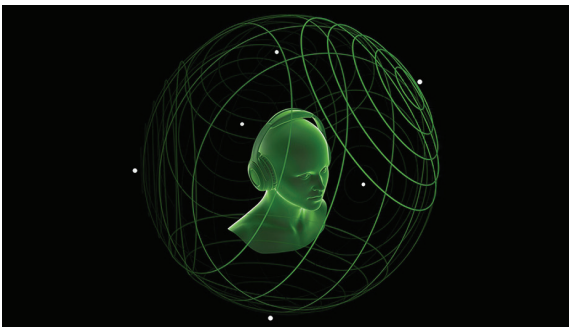


The future of audio technology

03.1 Spatial audio technology is,

Currently, if you are watching a movie, music video or playing a video game in theaters or at home, the sound you hear is drowned out. It lacks realism. But what happens in spatial audio is the behavior of sound around you. You are surrounded by unexpected sounds that surprise you, frighten you, and hear you behind you. Such real-world events occur in spatial audio technology. This gives you better fresh taste and fun.

The best thing is that no matter how advanced the technology is, you don't need to go to cinemas or any other special place to have this experience. With the right equipment you can have this experience right at your doorstep.



Spatial audio technology

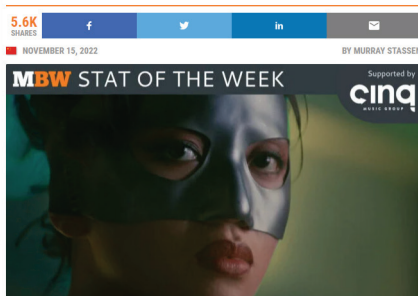
03.2 AI technology coming to the audio industry.

After many years of hard work, AI technology has become a reality in the last year and has taken a high rise in the last year (2022), says MBW. (Music Business Worldwide) According to the latest reports mentioned above, we will be able to see a new rise in the audio field with AI technology. Even audio recording technology is more likely to lean towards AI technology.

The reason for saying so is that it has already been proven that even a dead person's voice can be produced artificially by AI technology. According to MBW, the creation of new songs with the voices of Teresa Teng and Anita Mooi, who died some time ago, is currently being done at the research level.

According to the information above, we can think that in the future, the entire music industry, including audio technology, is going to move forward through AI technology.

OVER 1,000 SONGS WITH HUMAN-MIMICKING AI VOCALS HAVE BEEN RELEASED BY TENCENT MUSIC IN CHINA. ONE OF THEM HAS 100M STREAMS.



The late Anita Mui, pictured in the 1993 action film, The Heroic Trio, was a music and movie star in China before she died of cervical cancer, aged 40, in 2003. Tencent Music has now recreated the Hong Kong-born singer's voice using AI technology.

MBW's Stat of the Week is a series in which we highlight a single data point that deserves the attention of the global music industry. Stat Of the Week is supported by **Cinq Music Group**, a technology-driven record label, distribution, and rights management company.



Final Summery.

We know that since approximately 1870, audio technology has continuously advanced. This field, which has been developing since the 19th century, has now gone digital, leaving behind the analog era. There are many devices that have been created for the development of audio technology. Also its development is excellent.

It is because of the diversity in this field that many creative people come into this field and develop it without harming its roots. This book of mine is also for the development of this field and to help a seeker of new information.



Evolution of audio technology

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Thank For Reading
The End

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