Coexistence

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Abstract. This is a paper on the explanation of coexistence of visible world and invisible world, and the introduction of the world on ‘Coexistence’ work starting from a Cylindrical Hologram, ‘Green Apple’ in 2007 as its first work. It's a work improved from the existing way of creating Cylindrical Holograms in optical problems of the unseen lower part of an object by the shadow casting over it.[1] Many Cylindrical Holograms were made in the process of improvement such as Cylindrical Holograms of 360 degrees, of 180 degrees as well as Stereo Holograms and Color Holograms to create and express the existence of visible world and invisible world. Many Cylindrical Holograms were made in the process of improvement such as Cylindrical Holograms of 360 degrees, of 180 degrees as well as Stereo Holograms and Color Holograms to create and express the existence of visible world and invisible world. Those created ‘Coexistence’ Holograms were exhibited 4 times through in group exhibitions and 2 times in private exhibitions at the Gallery Golmok, Itaewon, Seoul on May 2012.

1. Introduction
‘Coexistence’ means anything or phenomena of more than 2 of them existing together. Our lives are surrounded by Coexistence that it is easy to find in two or more of any things or phenomena existing together. Any visible things such as our possessions, animals, plants, and invisible things such as lights, air, scent, etc are apparent in their coexistence.

‘Coexistence’ is a word of vary arcane imagination and a word scientifically provable to me thru studies arts and engineering. ‘Green Apple’, a cylindrical hologram created in 2007 is the starting of my work on ‘Coexistence’. I eat an apple every morning and the same kind of apples are always put on the same plate. Eating an apple leaves some seeds and a part of the apple, and yet an apple on the same plate is before me everyday showing the fact that the plate is coexisting with invisible apples. What I found out was the connection of the past and the present of the plate and the invisible apples for my intake of an apple every morning. That is, the existence of the plate is possible only when it coexist with an apple.

Apples Plane Holograms were made as a Coexistence work in 2007, but as the Fig.1, the work made it impossible to grab the image of holograms floating in the air unlike cylindrical holograms putting the meaning of ‘Coexistence’ in the shade, and so I became to create cylindrical holograms for the first time.

Making of Cylindrical Holograms of ‘Green apple’ was confronted with a difficulty, which was the impossibility of reappearing a perfect shape of the apple due to the shadow casting over the lower part of the apple.[2] For that reason, I had to improve the making method of existing Cylindrical Holographic Optics into an Apple Hologram perfect in seeing upper and lower parts of an apple. (figure 2) The know-how accumulated by the work on Cylindrical Holograms and research done for
the first work led me to create many Cylindrical Holograms, and then to create the ‘Green apple on a small plate’ a follow-up work of the ‘Green apple’ in 2011 (figure 3).

Figure 1. Green Apple (2007)

Figure 2. Green Apple (2007)

Figure 3. Green Apple on small plate (2011)

2. The Coexistence of Visible World and Invisible World
Everyone has a mobile phone in their hands to talk and send text messages with it. The phones in their hands before being used for contacts are the visible things. But the mobile phones are interacted by the help of invisible radio waves consisting of also invisible waves and particles. We can say this a ‘Coexistence’ of a visible things and an invisible thing.
It's our Coexistence that enables those mobile phones to work. Like this, there are the visible nature and artifacts together with invisible things on the earth. The existences of some of them are based on interaction. Only Coexistence makes their existences possible thus.

The existence of our ‘bodies’ ensures the existence of our ‘invisible bodies’. The similar meaning of invisible body is ‘a spirit’. The existence is possible by the ‘Coexistence’ of a visible body and an invisible body.

We are living in the world filled with invisible waves. Waves are unseen. The sun and the lights from the bulbs hanging from the ceiling -in other word, waves are invisible, but we can see things by their being.

Waves connecting a thing to another thing through mobile phone, radio and TV, and waves linking a life to another life are ponderable. We are able to see the holograms of the figures of things and lives recorded and restored by waves in the past, present and even in the future.

‘Schrodinger’s Cat’ in the quantum theory discussing a scientific tangible world is a story of a cat whether it would die or survive in the sealed box with a poison in it. The cat's survival depends on the act of opening the box by an observer. It explains that the observing act affects the consequence. Then, if a sequence ahead could come out by the thinking and imagination done before the act, we will be able to see secondly the sequence reflected on visible world firstly by the influence of invisible world.

My work on Holography was the making of the outcome of another ‘Coexistence’ by way of turning the familiar routine things and pictures around us into Holograms. Those Holograms are showing the Coexistence of the past and the future through life and death, visible thins and invisible things, things to use and to throw away. Working on and exhibiting bulb Hologram and Cylindrical Hologram of 180 and 360 degrees making visible things and invisible things coexist, formed the consensus of ‘Coexistence’ of the things unseen and the things seen.

3. Fruits Cylindrical Holograms
The Fruits Cylindrical Holograms were made for the ‘Picasso & Einstein 3.0’ Group Exhibition, which dealt with Science in Art that held Sep 2011 at Seoul Arts Center. Some of natural fruits were turned into 360 degree of Cylindrical Holograms hung in the air to make them look as if they were the fruits on the trees in the nature. Uni-color LED lighting was used instead of laser lighting to restore the existing Cylindrical Holograms. The restoration of the Fruits Cylindrical Holograms into the pastel feel by using Uni-color LED lighting developed a feeling of spirits out of those objects. There were interesting performances by the spectators trying to pick the fruits floating in the air during the exhibition of the Fruits Cylindrical Holograms (figure 4).

4. Green Apple on small plate
The ‘Apple on a Small Plate’ is a follow-up work of ‘Green Apple’ which clearly shows the world of my work on ‘Coexistence’. It's the work completed by constant supplementation and improvement in optical method of the Cylindrical Holograms that made firstly. This Cylindrical Holograms showed the expressions of the things seen and unseen at a time by disclosing them twice upper and lower parts. Shining the laser lighting from beneath made the broken apple and forks seen clearly, and the shining the LED lighting from above made the hallucination of the apple on a plate in the cylinder appear.

My will to express that started from the beginning of the work on ‘Coexistence’ was achieved through the application method of optics-based creation. My first ‘Green Apple’ was a work of a holographic apple on a small white plate aiming to express Holographic Coexistence of visible plate and invisible apple with the existing optics-based creation method, which ended up imperfect. The apple and forks shapes in the Cylindrical Hologram of the work of the ‘Green Apple on a small plate’ were seen clearly with the help of laser lighting after a research, and as the Figures 5 and 6 shows, they were seen from all directions, therefore 360 degrees looking as if they were actual broken apple on a plate in a cylinder. I could express the Coexistence of the past and the future by the help of LED lighting through the expression of the hallucination of the apple with visible apple and invisible apple on a plate and forks.
Figure 4. The scene in the exhibition hall (2011)

Figure 5. Green Apple on a small plate (2011)

Figure 6. Green Apple on a small plates observed in 360-degree (2011)
5. Exhibition of the Work on Coexistence
I held the 2nd private exhibition on May 2012 at Golmok Gallery at Itaewon, Seoul to show my 5 years works of ‘Coexistence’. I put out 14 works of ‘Coexistence’ together with diverse Holograms including Stereo, Color Holograms beside Cylindrical Holograms.

Figure 7 is a 180-degree Hologram of ‘Inspiration’ expressed invisible inspiration into a hologram. The inspiration received from God is the greater one than any other ones people get. The writings in the Bible are the products of the most perfect inspiration from God. Visible men wrote those, but the truth is an invisible inspiration that made the physical hands write them. This work is the expression of invisible inspiration with the hologram of a hand, and the expression of writings on the visible paper with the hologram of a hand.

Figure 8 is a work of 180-degree Hologram of ‘Coexistence with Death’ which warns the people of today leading busy life against their insensibility to death. A hologram of a skull is staring at a man standing before it without knowing death is approaching him.

Figure 9 is a work of 180-degree Hologram of ‘Coexistence of a visible banana and an invisible banana’. I kept the peel of a banana I ate on the opening day of the exhibition under my work of the banana hologram for 2 weeks. As time goes by, the banana feel was rotting down, but the hologram of a banana remains intact. It can be used as a comparison of human spirit and human body. It holds a message that human spirit remains intact because of its permanence while human physical body is rotting away.

Figure 7. Inspiration (2012)  
Figure 8. Coexistence with Death (2012)  
Figure 9. Coexistence – Banana (2011)  
Figure 10. Coexistence - Bulbs (2012)
Figure 10 is a work of 180-degree Hologram of ‘Bulbs’ that expresses the Existence of a visible bulb and an invisible bulb. An exhausted bulb is disposed in the condition of broken and lost in its glow while the Hologram of a bulb remains intact emitting light. A visible bulb emits light by the electric power, but not forever, for it is a mortal thing. On the other hand, an invisible bulb can emit light by other lights. Like this, our physical bodies shine by fame and substance, which never last long after all. Unlike the foregoing, spirits would shine forever by the lights in the world of God.

Figures 11 and 12 are 3 works of Stereo Holograms of hectic routines of city dwellers. People crossing the street at a crosswalk were taken in continuous shooting mode with a camera and then used for the creation of the Stereo Holograms. If an observer moves horizontally to see them, the people crossing the street at a crosswalk would be seen. Green, yellow and red LED lightings were used respectively to express and then restore the people moving busily following the traffic lights.

Figures 13 and 14 are the Color Holograms of Perrier Bottles, the contents of which I usually enjoy. The visual and invisible bottles moving from side to side behind the Hologram film being overlapped
into one and create an illusion that actual Perrier bottles are behind the films. We can see the Coexistence of a visible thing and an invisible thing at the same moment when the Perrier bottles move from side to side are not overlapped with films.

6. Conclusions
The work on theme Coexistence was conducted in various ways with the view of Coexistence of ‘visible world’ and ‘invisible world’. Holograms were fine tools that helped me in widening my vision on Coexistence of visible and invisible things, and they also brought me an opportunity to look into the invisible spiritual world. I will continuously make efforts for my next work on Digital Holograms to widen my vision on ‘Painting Holograms’ and ‘Coexistence’.

References
[1] JS Park(Ray Park), JY Park, SS. Woo, YS. Moon, HJ. Kang, Cylindrical hologram using Silver-Halide Holographic film, Workshop on the Optical Information Processing and Three-Dimensional Display Technology, Gangneung, Korea, September, 2011. Another reference
[2] G Saxby, Practical holography, Taylor & Franci, 2004