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**H O R I -  
Z O N S**

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# H O R I Z O N S



## E D I T O R ' S C O M M E N T

I edited the magazine for the second time since last year. I was pressured to edit the only English magazine at Hana High School, but I tried my best to continue the reputation of this magazine. I'd appreciate it if you enjoyed it.

근영 박



# School Trip

이주연

**D**o you like trip? The reason people want to go to trip is usually to enjoy various events and get relaxed. The second grade of Hana high school students went to Gyeongsang-do province and Jeonju for a trip for 3 days. The group of students who went to Gyeongsang-do province was bigger than the ones who went to Jeonju. Both team enjoyed their trip with their friends. This was the really exciting trip as they could travel with their friends together.

At the first day, some students went to the Gamcheon Culture Village. There were a lot of stores selling various souvenir and food. For example, they bought the badge that is designed in Korean or bought animal dolls.

The Gamcheon Cultural Village was a place for refugees in the 1950s. But now it became a major tourist attraction, attracting 1.85 million foreign and domestic tourists a year by promoting urban regeneration projects that include "cultural arts." There are houses painted in beautiful color and maze-like alleys along the mountain slope.

Gamchon Culture Village offers picturesque views of villages harmonized with beautiful nature, and visitors can enjoy diverse forms of art installed in alleyways. For example, there was a miniature of the little prince.

They could also enjoy diverse experience through the workshop of the artists living in Gamcheon Culture Village. They could visit lots of stores in Gamcheon Culture village.

One of the most special thing was to ride a Songdo Marine Cable Car. Students rode them happily watching the beautiful picture in the midair.

They also watched baseball games in Busan. They shouted a lot and also ate chicken watching the baseball games. That baseball match was filled with so many people. The outcome was really fun. Team Doosan won the baseball match.

Students who visited jeonju experienced a lot of things too. They went to Jeonju Hanok Village. That place is so famous that lots of foreigners also visit a lot. Students really enjoyed that trip. They saw traditional Korean house called "hanok" and got to know Korean history also. Children got to know that hanok is Korean traditional house and walked along the hanok. Moreover, they got to know that only Yangban lived there.

Beside these experiences, there were lots of activities students could enjoy. While, they ate various food and especially could enjoy korean traditional market. At there, they chose what they want to eat freely. From this trip, students could learn lots of things and get to have a great relationship. For example, they could cheer for their favorite baseball team together and from that they could be much more friendly to each other.

# The Power of Interaction: The First Academic and Cultural Exchange Festival in HAS

김도연

**H**ana Academy Seoul's first Academic and Cultural Exchange Festival was held on August 18th with students visiting from Incheon Haneul Academy. Academic clubs from each school were invited to give presentations related to a total of ten areas—commerce, social science, law and politics, media, mathematics, chemistry, biology, engineering and converged science, and experiment and research. By sharing their knowledge and opinions on these topics, students were given the chance to learn in depth about their topics of interest and expand their views.

In each session, students provided meaningful insight on a variety of topics. Some of the topics included the psychological impact of education during the Japanese occupation period in the social science session, the research and application of sound waves and chords in the engineering and converged science session, the value of commercials in the media session, nanotechnology and drug delivery systems in the biology sessions, and several more. In addition, clubs gave cultural performances in the opening and ending ceremonies, livening up the atmosphere. HAS's first Exchange Festival ended successfully, opening the possibility for further future interaction through knowledge and culture.





# *The inter-Korean summit, which received a lot of attention from the world*

이주연

**M**oon Jae-in, the president of South Korea and Kim Jong Un, met at Panmunjom, the symbol of division, on January 27. This is really significant event all over the world as this might lead to the unification of Korea.

They met at the Military Demarcation Line. North Korean leader Kim Jong Un, secretary of North Korea was in front of the northern Panmungak Pavilion at 9:30 a.m. that day. The two leaders, Kim Jong Un, the Commission of North Korea and president Moon Jae-in, shook hands with each other in front of the Military Demarcation Line. This meeting might be the start of the unification. Lots of countries broadcasted this incident. Especially South Korea and North Korea broadcasted this event for almost a week and various newspapers were filled with this meeting.

North Korean leader Kim Jong Un has crossed the Military Armistice Commission (DMZ) and the main conference room (T-3) for the 2018 inter-Korean summit.

The height of the concrete demarcation line between T2 and T3 in the truce village of Panmunjom is actually about five centimeters. However, it took 65 years for the North Korean leader to pass the wall. In this circumstance, secretary of North Korean Kim Jong Un said, "It's not high enough, so it will disappear after many people's step."

According to the existing plan, president Moon Jae-in and Kim Jong Un secretary of North Korea just needed to take pictures in the south ground. President Moon Jae-in said that he also wants to visit North Korea. After Kim Jong Un secretary heard that, he asked to president Moon "How about visiting north immediately by walking across the demarcation line right now?" President Moon said to him "That is the great idea" and he visited North Korea about 10 seconds. It was a surprise proposal. As this was not expected, lots of people including Korean talked about this issue for a long time.



President Moon and Kim Jong Un Secretary started the inter-Korea summit for peace and prosperity on the peninsula. Secretary of State of North and South Korea's president this committee's meeting got a lot of attention worldwide. Reporters from various countries, as well as South Korean reporters, gathered to cover this scene. In addition, as the world's various countries are connected with each other in an organic way, the world is becoming more curious about what changes the meeting will lead to. It is all because lots of countries such as USA, China is interested in North Korea's nuclear power and Korea's unification. They believe that Korea's unification will decrease it's power in the short run and increase it's power in the long run. Moreover, they believe that North Korea might give up the nuclear power if two countries are unified.

Because of two summits, many citizens were also interested in this amazing situation. People

also began thinking a lot about reunification. The meeting has shown that unification, which has traditionally felt so far, got to be one step closer, and interests in North Korea also growing. Also, by this inter-Korea summit, people started to think the unification positively and Kim Jong Un Secretary more closely. In the future, it is expected that North Korea and South Korea will be unified thanks to the friendly exchange. However there are lots of obstacles to make the bright future. First, there might be lots of countries that don't like unification of Korea as it might decrease their power in the international trade because Korea's international influence will be bigger and bigger. Even though it might be hard for both North Korea and South Korea at the first time, they can overcome these problems if they establish great relationship together.

It was reported in various news and newspapers, and the media throughout the day.

*Future prospects were increasingly expected.*



## **"#Me too" movement and feminism: silence breakers**

이지민

**H**ave you ever seen a hashtag named #MeToo? Probably yes. "Me too movement" is a movement sharing stories of sexual violence. Women around the world now open their mouths, and Korea is obviously in the middle of its own movement. An Hee-jung, a provincial governor and potential presidential candidate, who was blamed for assaulting one of his secretaries, was the first one who brought MeToo movement to Korea.

He was not only case. Since then, prominent leaders in politics, arts, entertainment, academic and religious field have been accused of sexual harassment abuse. What is more, it seems like only a matter of time for victims speak out.

South Korea has evolved as one of democratic countries. We, Koreans, have showed peaceful transition of power. We have resisted dictatorship. We have spoken about irrational working environment. But we have skipped another important thing, women's rights.

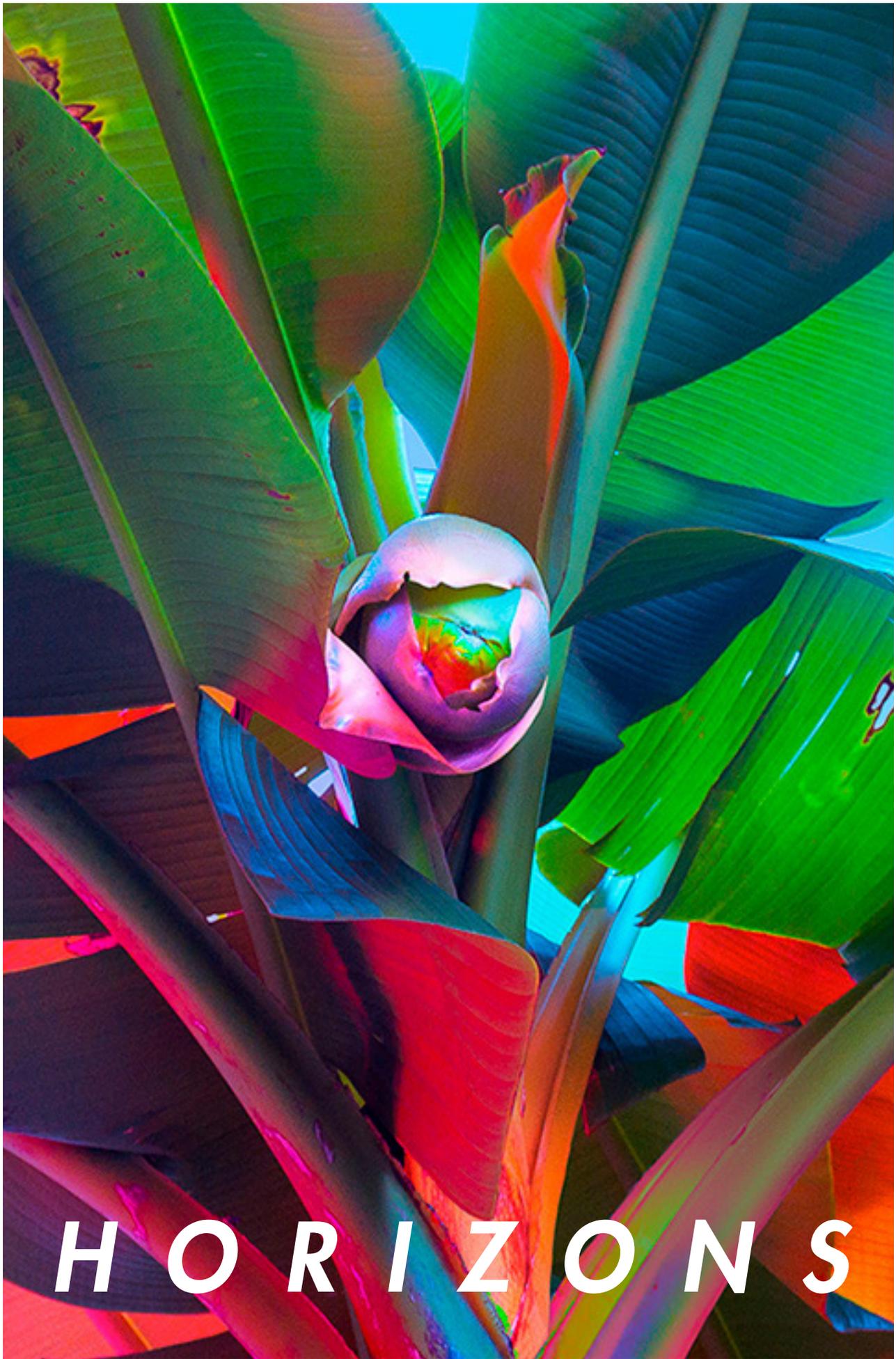
Many Korean women have experienced horrific forms of sexual harassment but not opportunity revealing their experiences. In television, a scene of dating violence seems like a romantic scene. Many female singers endure sexual harassment. In the Internet, a great deal of expressions misogyny have been everywhere we click. Books, entertainment programs,

articles, even politicians' official talking have shown misogyny more than we have expected. However, the prevalence of sexual assault and harassment has been routine. They are treated as nothing special. They were here, they are here, and they will be here.

But the atmosphere flows in the other way. This time, women try to make one power for themselves. They speak out their opportunities, get bond with other victims, protest for misogyny, and even in their daily life, they try to break the cycle they have been experienced. They are trying to break silence. MeToo movement is the first step for this.

On the other hand, there are many obstacles. People are tired of hearing women's voice, or maybe, they don't want to hear it. They feel such sexual abuse is not theirs, but for victims who didn't have much fortune. Is it true? Well, there are too many sexual abuses to say it's true. In Korea, an atmosphere to not thinking of sexual abuse like "tradition and custom" is prevalent.

Even though this fact, this time is the best to talk about those things, which were avoided and reluctant to say. Feminism has been brought actively more than ever before, young and old women have encouraged, moreover, most of us begin to aware of this cycle. Now, get involved in this stream of times. We should be #WithYou.



**H O R I Z O N S**



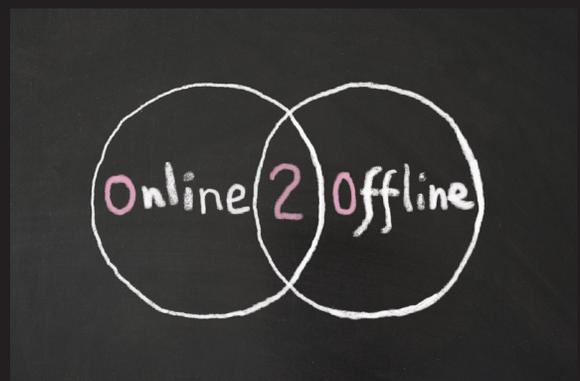
# ***Convergence Between Online and Offline, O2O World is Approaching!***

***: Internet of Things, Big Data, Artificial Intelligence, and Virtual Reality***

문규원

**W**hen we request to call a taxi in online, a real taxi soon arrives to our location. You might understand this process as that the demand that we request in online is implemented in offline, a real life. In foreign countries, 'Uber' is doing a similar role as 'Kakaotaxi'. In O2O world, the starting point is in online and the services are mainly applied in offline. The word O2O represents the word 'online to offline', the connection between online and offline. It means that we expand our experiences that we face in online to offline and we finally make a new big opportunity of one business. The main examples of O2O services are 'Kakaotaxi' as I referred before, 'Group of Delivery', 'Siren Order' of Starbucks, and 'Line messenger', etc. 'Siren Order' is new order method of Starbucks by using application. With an application, you can order and just touch on your cell phone and the coffee you want is there right away without even having to stand up for it. Like these many cases, O2O world is approaching these days as the time develops deeper into the 4th Industrial Revolution.

The four most representative technologies in the 4th Industrial Revolution are Internet of Things(IoT), Big Data, Artificial Intelligence, and Virtual Reality. When we begin to enter into the O2O world, it becomes possible to have a convergence between virtual reality in online and reality in offline. It means that the boundary of online and offline is finally destroyed by the help of technologies and we now converge with online community. By those convergences of two worlds, it lets us to enter into the new world of life.



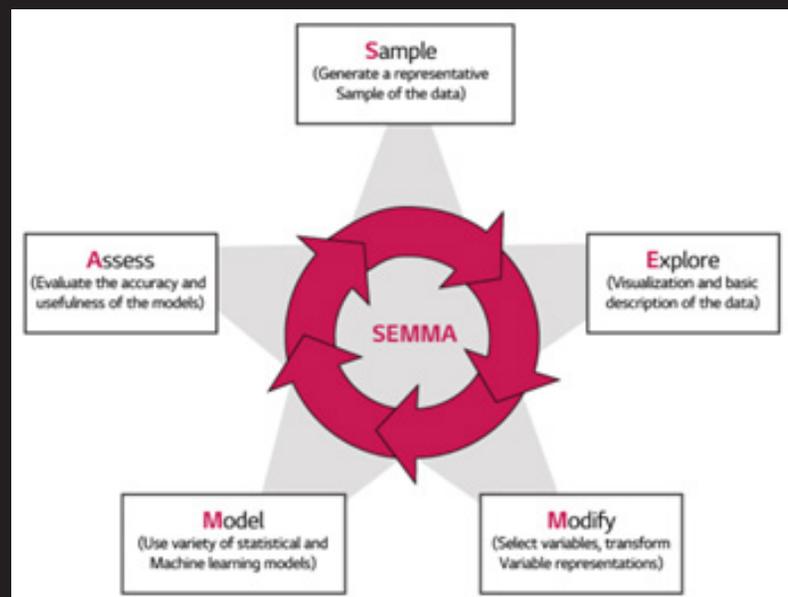
## ***Network community between objects, Internet of Things***

**I**nternet of Things is a service that all objects including material and immaterial being connected each other and provides a new service that individual objects cannot implement in the past. Suppose that a bed and a courtesy light are connected each other. Without the connection between objects, we just need to get up on a bed and turn on or turn off the light by our hand. However, in the period of Internet of Things, the bed will recognize whether a person is sleeping on a bed or not. This is a main point in Data Communication period as if the objects are having a conversation. In our real life, IoT is highly used on the domestic appliances. For example, we can turn on the boiler outside the house and can also control the lights or the air cleaner, which leads us to maintain nice house environment even when we are not at home. Isn't it amazing that objects can have a conversation like humans? Also, from the conversation between many objects, humans begin to live more convenient life.

## ***Overflowed amount of information in Big Data period, we need data mining!***

**T**oo much data or enormous volume of data, we are now approaching to the Big Data period! To live efficiently in the Big Data period, we all need to learn how to arrange and organize the data. Data mining, which has the process of extracting valuable information from the high capacity database and deducing new information such as patterns that are veiled from the extracted information, usually goes through the SEMMA process. SEMMA process is an abbreviation of 5 words, 'Sampling', 'Exploration', 'Modification', 'Modeling', and 'Assessment'.

The first step, Sampling, selects and extracts the data that you will use to analyze the information. The second step is Exploration. In this step, you investigate the overall shape of the extracted information and provide insight about a dataset by calculating basic statistics. The third step, Modification, is a step of a conversion step for the data mining such as eliminating the overlapping information and normalizing data. The fourth step, Modeling, is a step that decides the most proper way of analyzing the given problem and finally you begin applying. The final step is Assessment stage and in this step, you assess the result of an analyzed model and also apply efficiently the result, that you deduced by using the visual tools, to the process of decision making.

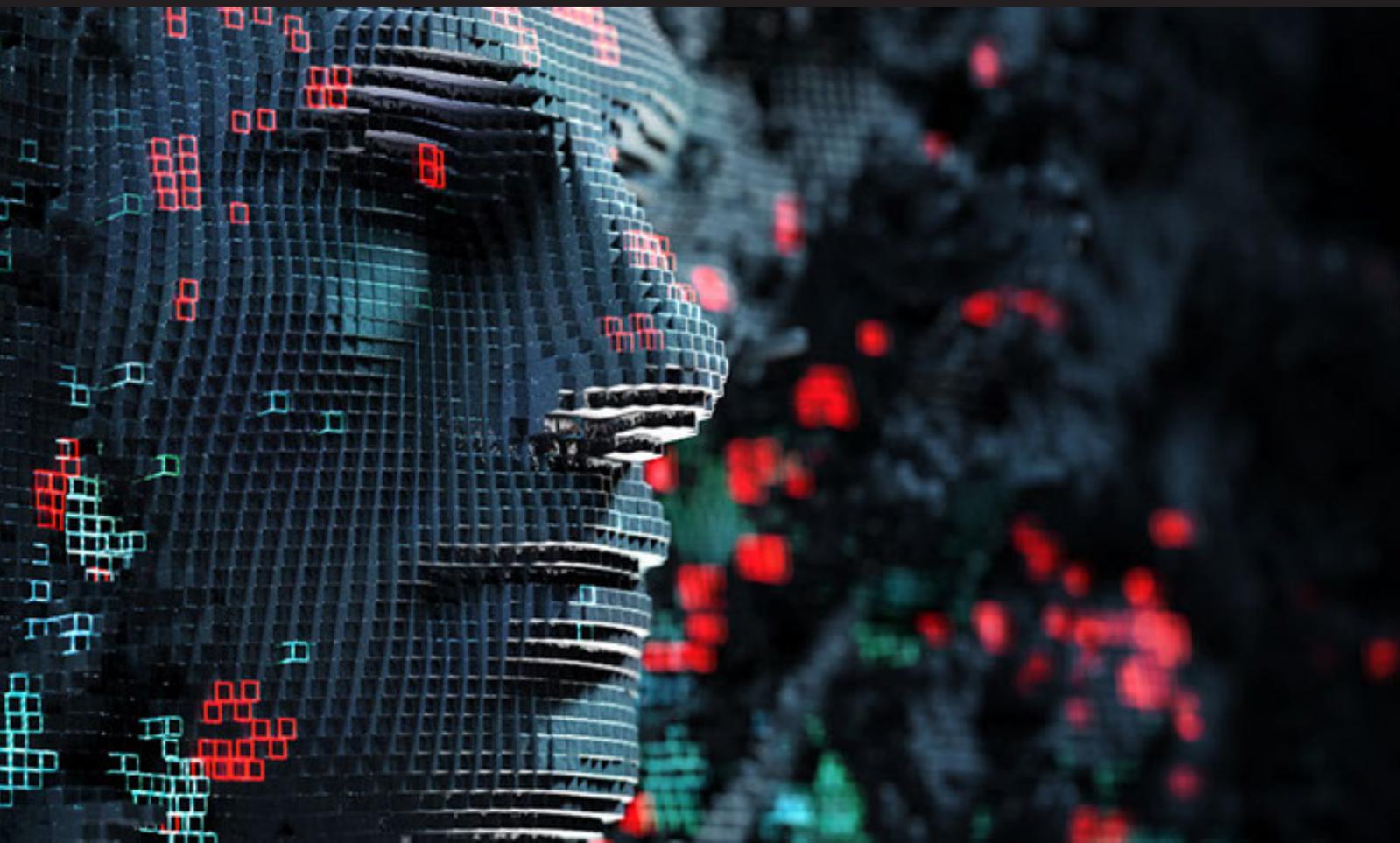


## *Double faces of Artificial Intelligence development*

**M**ost of you may have heard about the amazing GO match between Se-dol Lee and AlphaGo. This was a very hot news in 2016 as a competition of human versus artificial intelligence. The best of seven series of the amazing GO match was ended 4-1 in favor of the artificial intelligence, AlphaGo. Artificial intelligence technologies are developing amazingly and also influence a lot to our life. As the artificial intelligence technology develops rapidly, we can think that our lives can be more convenient and easy to live than the past.

However, there are also many disadvantages that can also occur because of the development of artificial intelligence. The biggest problem is that artificial intelligence can catch away humans' various occupations. As artificial intelligence show up, our world may not need humans who have an occupation of production that does simple repetitive works such as blue collar jobs for mass production. Moreover, machine technicians and service industry may also disappear. If artificial intelligence can write articles, then authors, novelists, and journalists all can even disappear. Recently, Watson, an AI doctor, was invented and it can push human doctors out with higher reliability and accuracy of the treatment. Despite those benefits, it can influence patients at a hospital to lose their psychological comforts. For example, imagine that you are a patient of a hospital and you are really sick that you need to stay at the hospital for one week. However, it isn't always good that there is no human doctors who can share and talk feelings emotionally with a patient. Artificial intelligence doctors like Watson are really strict and act like robots because they are not humans. Humans need to have a conversation with humans, not with robots, machines, or artificial intelligence.

I want to throw a question that even though artificial intelligence are smarter than human, faster than human, more accurate than human, will this be beneficial in all aspects of our life? If we change our perspective a little bit, there are a lot of things that we can lose because of an artificial intelligence. Isn't it the better way to let human versus human to share their feelings together than not communicating with machine at all?



## ***Can we feel the unreal world? Virtual Reality is coming!***

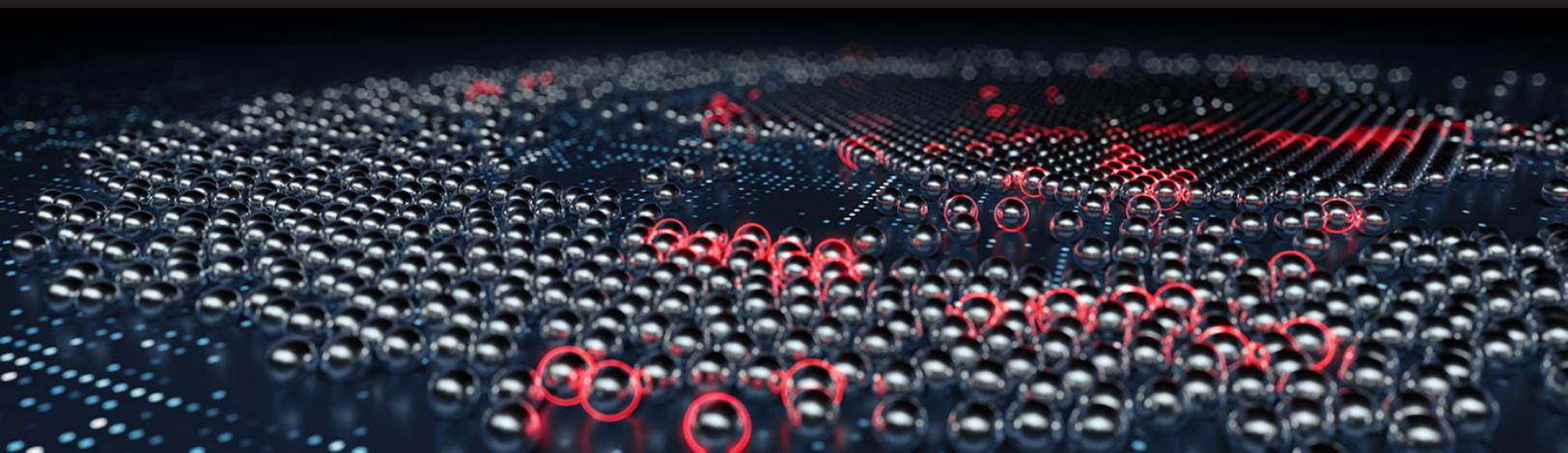
**V**irtual reality is a virtual world which is created by the artificial technologies such as computer graphics and it shows the world that isn't reality as if it's real. In the virtual reality technology, there are 5 big features. They are artificialness, immersion, telepresence, network, and interaction. VR technology even has an influence on the medical world. Virtual reality has a skill to treat one's disease. Virtual reality gives an "illusion" to one's brain and it can make a patient to feel like that he or she is all recovered. Then, amazingly, the disease is all recovered in reality. For example, let's imagine that there is a patient who is paralyzed in one leg. Also, a patient puts on a virtual reality equipment and sees a moving world that is moving forward with his or her two legs. Then, the brain gets an "illusion" that he or she can move and interestingly after few days ago, with these repetitive treatments of using VR equipment, a patient perfectly gets recovered and finally begins to walk. We now know how the thinking mind has a strong power.

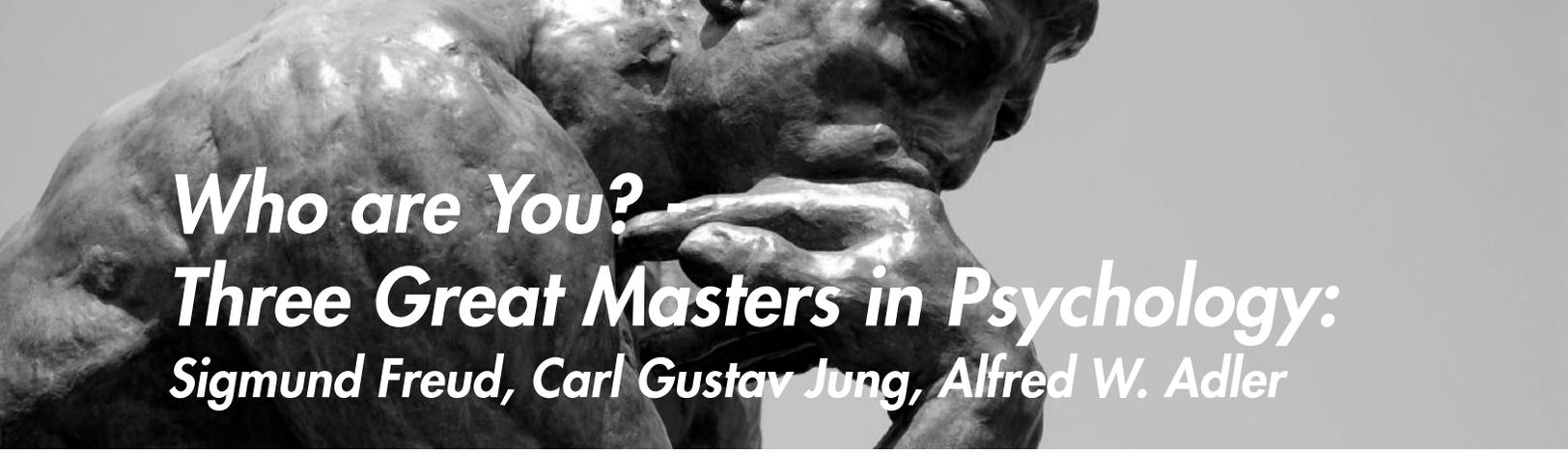
Like this, virtual reality gives new various changes to our life and some scientists say that in the upcoming future, "Mixed Reality" will come. "Mixed Reality" is a mixture of a physical environment of real world and virtual environment. They are saying that this can be our everyday life in the upcoming future. Today, many scientists are studying on virtual reality technology of feeling five senses, vision, smell, hearing, taste, and touch. Virtual reality is an amazing technology that has an endless, inexhaustible infinity of advancement.



## ***Coexistence between human, technology, and nature***

**W**e've looked over the four technologies that will be mainly used in the 4th Industrial Revolution. Internet of Things(IoT), Big Data, Artificial Intelligence, and Virtual Reality. Future technologies have infinite possibilities to develop more and more from now, however, we must try hard to maintain the coexistence between human, technology, and nature. As all three sources coexist with each other, the better world, the bright future will come.





# Who are You?

## Three Great Masters in Psychology: Sigmund Freud, Carl Gustav Jung, Alfred W. Adler

염원

Psychology is the scientific study of human behavior and mind. In the information society, problems related to human life that robots cannot solve are becoming more important. Therefore, psychology is very important to solve future problems, but many people are not interested because psychology is difficult to understand. For a first-time psychology learner understands psychology, it is necessary to read by comparing the theories of three great masters in psychology: Sigmund Freud, Carl Gustav Jung, Alfred W. Adler.

Sigmund Freud was an Austrian psychiatrist and a psychologist who laid the foundation of psychoanalysis. Freud confronted key memories from the patient's unconscious mind through conversation, not use hypnosis to cure neurosis of patients. In conversation with patients, he focused on their dreams because dreams are a realm of unconsciousness and reveal key memories. He interpreted dreams by using free association and studied 'hysterics'. Freud's super-ego theory that Freud found in this process affected philosophy greatly to the collapse of modern subject philosophy. However, Freud too focused on sexual elements. Freud said "the desire and the sexual urge are the two motives of human behavior" (interpretation of dream). And he defined the controversial concepts of infantile sexual desire and incest-related impulse as important motivational factors affecting the human life. These assertions have been receiving a lot of criticism even until today.

Carl Gustav Jung was a Swiss psychologist and psychiatrist. Even though his theory started by reviewing Freud's concepts in a critical manner, his perspective drastically differs from that of Freud. Jung emphasizes the mysterious and religious history or one's cultural background instead focusing on sexual elements. He established the concept of the collective unconscious and asserted that the collective unconscious itself is expressed through myths and symbolic objects. Therefore, in Jung's theories overall, it is important to raise awareness about not only the personal unconscious, but also the collective unconscious. Persona that is a mask that humans use to adapt to the society in the structure of the mind shows how important Jung treated collective unconscious.

Alfred W. Adler was an Austrian psychiatrist and psychologist. He touched by Freud's lectures, so he had organized the Vienna Psychoanalytic Society. He took charge of the first president of the association. However, he founded his own subfield of psychology in 1912 called individual psychology by rejecting Freud's sexual theories. Individual psychology differs with Freudianism, because Individual psychology is based on lifestyle.

Adler asserted that individual's personal lifestyle shows his or her personality and basic goal of life. By Adler's account, lifestyle that made at the age 4~5 changed very as little as possible. This is decided by the two standard: social interest and degree of activity.

Psychology has affected many areas as it is the study of the human mind, so no matter what profession readers aim for, psychology will be necessary. The three theories differ slightly, but they all became the basis of psychology. Readers can access easily to psychology through this article.

# Hi, Siri?

유지연

## **Defenition of AI**

In the movie, Island, protagonists "Lincon" and the characters find out their identity as a clone and end up escaping the facility. These days, Artificial Intelligence such as Bixby, Siri, and AlphaGo is becoming issue. Then, what is an artificial intelligence, and how has it evolved? According to Stanford's 2016 AI report, AI is a machine which is made to think intelligently by simulating human brain mechanism. AI can be classified into two categories, Deep Learning and Machine Learning. Machine learning is a way to identify the pattern by using the complex algorithm. On the other hand, Deep Learning is a machine that materializes Deep Neural Network, which foretells data without human's help.

## **Who is the ancestor of Siri?**

Although it has only been fifty years since the word "AI" appeared, even non-specialists are familiar with the concept of AI. Thanks to the public's attention, AI has developed rapidly throughout fifty years. In 1946, people anticipated that computers would be able to surpass human's ability by ENIAC's emergence. People were astonished that the machine was capable on finding a maze and solving puzzles on its own. Nevertheless, its capability was not enough to handle the myriad of variables which made people's attention cooled down. Although the concept of artificial intelligence was established in 1956 during the recession, people were even more suspicious about the fact that machines can create intelligence equivalent to the human brain, and gradually, the support of the state was cut off. However, the advent of neural network theory in 1980 brought AI back into the spotlight. Neural network theory is a mechanism which considers human thoughts as a product of brain action and analyze brain structures. However, neural network system was again in a crisis since there was no other method to manage the enormous amount of data required for operating. This crisis was resolved by the rapid development of the Internet in 1990.

## **What fields are we using AI?**

AI has developed among various fields. At 1970, Stanford University has devised a system called "MYCIN", which detects infected virus and provides patient a prescription without specialized medical treatment including seeing doctor. To develop MYCIN, Stanford used experting system by inputting knowledge into a computer and making inferences about the professional level of each field. This technology is also used by Goggle when selecting a cat video among the ten million video clips posted on You-Tube. As if by magic, the accuracy of the mentioned technology was as high as seventy percent. This technology is anticipated to be utilized into various fields especially when classifying different objects without human's assistance. Researchers in Korea even utilize artificial intelligence to Nephron is an 'Artificial Intelligent Trash Can' made to select and compress cans and bottles automatically. Users can earn fifteen won for cans and ten won for bottles by entering their phone number. People can change the point in available cash when they reach over two thousand points which can promote the usage of this technology. Nephron learns and applies data obtained from interaction with other nephrons; weight, materials, shape, and size to enable various recycling categories over time. According to Dongdaemun District, two nephrons collect more than 600 kilograms per month on average, which is equivalent to 3 percent of the total amount of calories and cans collected through a garbage field in Dongdaemun District.

## **So what?**

However, not everyone regards AI positively. Some argue that scientists should be prohibited from regarding AI. They assert that AI will increase unemployment threatening the ethical values. Conversely, others argue that researchers should intent on developing AI since it can be utilized on various scientific fields including mathematics, statistics, astronomy, physics, and others. However, as a stepping stone for the Fourth Industrial Revolution, one should have a neutral opinion for AI by promoting the development thus piping off the excessive side effect.

# Korea, Japan, and China: A Comparison Between Each Country's Mainstream Social Media

김도연

Social media has become a nearly essential part of our daily lives as an effective means of communication. According to a recent report from American research company eMarketer, the number of social media users around the world is estimated to be 2.4 billion, approximately one-third of the world population. The impact of social media on our lives has grown to a truly remarkable extent, with people constantly sharing their daily lives or opinions using these services. Although it would not be an exaggeration to say that social media connects the global community, it is also interesting how the type of social media most prominently used often differs from country to country—in fact, while Korea, China, and Japan are neighboring countries, the main social platforms used in each country completely differ. In this article, we'll compare Korea's mainstream social media to those of Japan and China.

## **Korea: Facebook and KakaoTalk**

Facebook is currently one of the most influential platforms in Korea. According to Yong-bum Cho, CEO of Facebook Korea, the number of Facebook's daily users reach approximately 1.1 million on both the PC and smartphone version of the application. Facebook requires its users to enter a certain amount of personal information, including their names, in order to fully experience the application's various services. It functions for many as an effective method to communicate with one's friends and acquaintances.

The application KakaoTalk takes up 95% of the mobile messenger market share in Korea. KakaoTalk provides a convenient and free means of communication as it only requires online access in order to freely "chat" with other users. Since its first appearance in 2010, the application has evolved to include a variety of features including group chatting, open chatting, games, KakaoPay, and more. KakaoTalk has not only revolutionized mobile communication but has also played a major role in greatly increasing smartphone usage in Korea—even in the span of the year 2010, in which KakaoTalk was first introduced, the number of smartphone users leaped from one million in January to seven million in December.



## **Japan: Twitter and LINE**

Compared to Korea, Japanese users, who generally dislike revealing their personal information online, are less enthusiastic about communicating through Facebook. Japan's younger generation has particularly seen a steady decrease in Facebook usage due to the country's more closed culture. Twitter, in contrast, has served as a more suitable service for providing anonymity, requiring less exchange between users. Such characteristics make Twitter the optimal platform for Japan's exclusive social atmosphere.

In addition, you may be surprised to learn that the main chatting application in Japan is LINE, developed by Korean Internet service company Naver. Naver Japan first came up with the idea for LINE after the 2011 Tohoku earthquake, during which people communicated with each other through several social media applications. LINE is an especially convenient application for the country because there are many restrictions when sending text messages in Japan. For example, until 2011 it was impossible to send text messages to users of different telecommunication companies, which meant most users had to resort to using e-mail instead. Features such as sending cute character "stickers" also suit the tastes of Japanese users, who enjoy using emoticons in their messages.



## **China: Weibo and WeChat**

Due to the strict censorship of the Chinese government, it is impossible to use foreign social media such as Facebook and Twitter in China. As a result, Chinese users mostly use services unique to their country. Xinlang Weibo, or Weibo for short, is mainly used in China. Known as the Chinese Twitter, Weibo functions as a microblog as well. However, Weibo is also under the censorship of the government and posting politically "inappropriate" opinions is strictly forbidden. For instance, after President Xi Jinping proposed to extend his presidency, the government heavily censored Weibo posts including phrases such as "I don't agree," "migration," and "constitution amendment."

WeChat, developed by Chinese Internet company Tencent, is also a popular platform in China. Also known as Weixin, the application provides services including mobile messaging and WeChat Pay, which is already widely used as a means of payment in the country with a total of 600 million active users.



# Mind First, Technology Later

임형석

‘Though you want to help people in difficult situation, you cannot help, cause you do not have any knowledge in technology.’ Some people could say that sentence, cause we tend to think that expertise and technology is more important than determination in completing our tasks. However, when we look at the real cases that mind recovered the lack of technology, it is not true.

In 2017, on BBC News, they introduced an unbelievable invention, ‘Emma’, which is an A.I.-based wearable watch. What is interesting is that 'Emma' does nothing. Even, it doesn't have a function to show the time. It seems to be some kind of useless, but expensive watch. But actually, if 0.13% of people in the world wear this, their whole-life wishes, come true. By using this, they can stop their quivering hands.

Emma is a device for patients with Parkinson's disease. Parkinson's is a chronic nervous system disorder, which is one of the most common degenerative neurological diseases. Degenerative neurological disease occurs due to absence of certain nerves. If you get Parkinson's disease, you can not even write your name properly because of severe tremor in the arms and hands. Unfortunately, there is no perfect cure for the disease. So many Parkinson's patients were in great depression and felt helpless because they could not work at their jobs, experienced difficulty in their daily lives, and could not do anything because of their hands don't stop shivering.

'Emma' alleviates the condition and helps patients with Parkinson's disease to carry out everyday tasks. Artificial Intelligence studies the patterns of the unique pattern of patient's hand quivering, and starts vibrating by using its embedded motor. The brain mistakes the vibration of the motor is the hand quivering, so the tremor rapidly decreases.

'Emma' was invented by an engineer in Microsoft, Haiyan Zhang. It is notable that a person who does not belong to the medical profession had made such an unbelievable device. From an interview with Haiyan Zhang, she revealed that she has a friend named 'Emma', who was a designer. Actually, Emma was patient with Parkinson's disease. Zhang understood how inability on the physical, social aspects can discourage people.

When Zhang first came to the US, she experienced similar frustrations. In China, her mother's country, she was a competent, contributing and respected member of the society. But as an immigrant, she felt defeated, having faced the social and cultural barriers of the foreign land. She even couldn't write her name! By this experience, Zhang was able to truly understand Emma's agony. So, she desperately wanted to help Emma, and started to make 'Emma', the medical device.

At first when she started her project, people questioned her expertise and medical knowledge about the disease. In her interview, she said "It didn't really matter. Primarily, I'm an engineer, not a doctor. What I needed to solve the problem was not the knowledge in the disease." It was an understanding of Emma's agony and determination to help Emma, and 10 millions people who are suffering of Parkinson's.

Haiyan Zhang had said that "It seems that many people just think of 'Emma' as some kind of high technology. But the core of 'Emma' was mind, not technology. People think that technology made a better world, but fundamentally, technology comes from the mind that we want to help others. Obviously, we can realize that 'Mind first, Technology later.' If you are willing to help others, you can help them even if you're not familiar with technology.

There is another example that mind is above the technology. There was an ordinary student named Ludwick Marishane, who lived in a small town in South Africa. One day, he got access to statistical data that showed that there are 2.5 billion people in the world who are unable to wash properly and that they were susceptible to Trachoma. Trachoma blinds 8 million people every year. All they needed to do was just wash their face properly. Ludwick was very shocked and realized that someone must stop this. He realized that if he could make an invention, which makes plenty of people to wash oneself properly, without any water or soap, then he could stop it.

But all he had was the intellectual level of a high school student and a cellphone that had difficulty entering Wikipedia. Though he had tremendous obstacles, he wanted to stop the problem, and never gave up. Eventually, he invented 'Drybath'. Drybath is a lotion that could be applied on dry skin to cleanse the dirt and germs out without water.

Actually, he had one problem to make his invention practical : money. It was clear that someone who can't afford to have a proper bath, can't buy his invention, due to its high price. For solution, He thought out that rich people, still can afford proper bath, but too lazy to that they hates to have a bath. So, he earned his money by selling the high-capacity premium models to rich countries. By this, he could provided Drybath at the price 0.34 dollars to the poor people. He saved about 7 million people, and made 2.5 billion bottles of 'Drybath', from just little amount of knowledge about science. Again, the message is clear. Mind is more important than technology.

It doesn't matter whether you're skilled or equipped. The question is, whether you try or not. In an interview with Ludwick Marishane, he said, "I was only paid about 3 dollars a week on a gravel road in a small village in South Africa. The environment was bad, and I knew very little. However, for the rest of the world, I suggested a way to remain clean without showering. But what are you waiting for? Don't hesitate."



# Fractal Cosmology

박다원

Humans have desired to find out the structure of the universe.

From Fred Hoyle's steady-state cosmology which states that "the universe always maintains its form and doesn't change", to the Big Bang theory which points out that steady-state cosmology can't explain the principle of the conservation of energy and claims that "The universe started with a big bang." Nowadays, cosmology is still changing and developing based on the big bang theory. One theory that emerged is the 'Fractal cosmology.' Gottfried Wilhelm Leibniz, the famous mathematician and the philosopher of 17th century, came up with the new idea. He presented a unique theory, called 'monadology.' It claims that the universe is composed of countless monads, And in each monad, the universe is again materialized. If one monad contains another complete universe in itself, than the universe will contain more monads in it, and this will repeat endlessly. Nowadays, this theory is known as 'fractal cosmology.'

In mathematics, a fractal is an abstract object used to describe and simulate naturally occurring objects. Artificially created fractals commonly exhibit similar patterns at increasingly small scales. This feature is also known as expanding symmetry or evolving symmetry. If the replication is exactly the same at every scale, it is called a self-similar pattern. If you look at a tree, you can see the leaves covering the whole part to undergo photosynthesis more efficiently. To cover the whole tree, the small branches should grow in all directions evenly. If you see the branches, you might think the tree is very complicated, but actually, it is made of a very simple pattern. An easy pattern of one thick branch dividing into two branches at fixed rate can make the branches cover the whole tree. In this case, if you expand a part of the tree, you can see the whole figure of it from that part. This feature is called 'self-similarity' and the geometrical structure that has self-similarity is called fractal structure.

Now, let's look at some pictures that support this idea.



Cosmology is still developing and nobody can exactly define the structure of it. The curiosity of human and creative ideas like 'fractal cosmology' will get mankind to the answer.



# Have You Ever Heard About NFL?

김도윤

During 1607 to 1775, when the United States was a colony of England, Americans naturally became accustomed to British culture. Therefore, in 1783, after United States became independent from Britain, they tried to create their own culture and created Movie industry like Hollywood, musical industry, and sports industry that they proudly represent. Before they created the sports industry, they mainly played British traditional sports such as cricket and loungers. However, since they created the sports industry, they have begun to put more emphasis on American independently developed sports, especially sports that people are more interested. These emphasis has led to the ‘four biggest sports in the United States’, also known as ‘Big 4’ including NFL, MLB, NBA, NHL.

Among these four leagues, many Koreans would be familiar with MLB or NBA, but not NHL or NFL. That is because that two leagues are not very popular Korea; however, in America, many Americans are enjoying those two leagues and especially so many people enjoy NFL. According to Harris Poll, 33 percent of the survey participants prefer the NFL, 15 percent prefer the MLB, and the only five percent of people prefer the NBA and NHL. As this survey shows, in the United States, American football is receiving so much attention and love. So today, I would like to introduce NFL that Koreans do not know well.

NFL was started in 1920 with the American Professional Football Association. The total number of participating teams was 11 and the remaining teams until now are the Chicago Bears and the Arizona Cardinals. Since then, in 1922, the league changed its name to the National Football League (NFL), and NFL received people’s great attention. Because NFL had a big popularity, several leagues, including AAFC, had tried to challenge the NFL's growing popularity, but most of them have failed. However, the American Football League (AFL) founded at 1959 succeeded in settling down despite the NFL's checks and grew its size that the NFL could not ignore. The secret of AFL's success was at NFL's closed franchising policy. AFL attacked the area where NFL have not occupied even though some areas like the center of the big cities at the South and West was demanding for major sports. AFL successfully attacked the loopholes of the NFL's business network and then the NFL finally abandoned its policy of closure and started expanding its league actively. As the AFL was on par with the NFL in quantity and quality, the Super Bowl, which was planned as an event match between the two league champions, was launched. However, as the Super Bowl became a huge success and the competition between the two leagues became fierce, the Super Bowl put a big strain on the finances on each team. Therefore, in 1969, the NFL proposed the league's integration with the AFL, and the current Super Bowl system was established. The combined league was named NFL, and the existing NFL and AFL switched its form to conferences respectively and changed name to National Football Conference (NFC) and American Football Conference (AFC). The integrated league consisted of 26 teams.

The first person to encounter the NFL is often regarded as a game of no strategy, but in fact, it is an extremely strategic sport. The NFL strategy requires memorization with understanding. New players assigned to a team have to memorize a strategic book, which is as thick as a phone book. In addition, all NFL players have to take the ‘Wonderlic Test’ before the draft, which requires 50 questions to be solved within 12 minutes. Particularly, the strategy for quarterbacks to learn is about

the thickness of one or two encyclopedias. Because quarterback has to go on with the attack within 40 seconds after the down, he must think about what strategy to use and have to deliver his thoughts to his team. Therefore, if you concentrate on the game, you could hear someone shouting at the scrimmage line, the quarterbacks. In this process, shouting must be encrypted because the other players are also listening, so all players on the field must memorize their team's tactics perfectly, and understand what encrypted signal means. While this is happening, quarterbacks also have to concentrate on watching the opponent's defense and making a 1:1 match. Not only quarterbacks, but also one player from each team with a green sticker on his helmet plays an important role. In his green sticker, receiver is attached to receive commands from the offensive coach. Offensive coaches usually watch the game with analysts on the 2nd-3rd floor of the stadium using their laptops and give feedback to head coaches or players with a green sticker. Snapshot of the play that was taken from various angles are analyzed, and delivered to the coaches. In this reason, the use of communication devices is legalized than other sports.

With the long history of football, the health of retired players is becoming a hot issue. It is natural result to see people more than 220lbs rushing each other at the top of the speed. In fact, one broadcast compared Ray Lewis' tackle to the force of breaking by firefighter and the results showed that Ray Lewis' tackle is about 200 pounds stronger. At this rate, this is enough to turn helmets and protective gear into weapons not a protective equipment. Many retired players are suffering from aftereffects caused by repeated impacts on the brain, such as rough tackle on the head and helmet collisions. There are also similar dementia symptoms such as Parkinson's disease and punch drunk. The official name is Chronic Traumatic Encephalopathy, abbreviated to CTE. According to a survey, one out of three retired players are suffering from the disease. The NFL is currently in a state of emergency because there are frequent reports of suicides by players who are suffering from CTE.

NFL is not popular in Korea compared to its global popularity. Actually, the NFL has the largest revenue among the sports league in the world, surpassing the EPL (English Premier League), English Football League, or LA Liga in Spain. Besides the fact that I mentioned above, there are many interesting stories about NFL. I know that It's not easy to approach NFL, but If you get started to having a little interest, I'm sure that you'll be a big fan someday.





# Abandoned Animals and Helping Hands

이정민

Let's imagine an abandoned pet roaming around the city. This dog, named Fluffy, was left alone in the seaside village last summer by his owner. He was abandoned in a restaurant parking lot. He barely escaped from the dangerous place, but nothing else was familiar to him. His family was on the vacation, and he happily accompanied them during their trip until he noticed he was thrown away. He knew nothing about the neighborhood so he had to search desperately to find something to eat. Furs on his face have grown too long now that he can't see things well, which makes it very dangerous for him to go anywhere. Also, it is impossible for him to react swiftly in dangerous situations because he broke one of his hind legs as he jumped to avoid getting hit by a speeding car. Animals being abandoned has become a serious social problem. However, the approach we usually take to learn about the abandoned animal issue is focused on introducing the main points of the problem and persuading the public to take actions. Many students learn that a lot of animal shelters fail to take good care of the abandoned animals, and say we should improve the conditions of these facilities. However, they have comparatively low access to the information about 'which specific programs should be developed to help the animals.' Abstract approach to solving a problem acts as a hindrance to addressing the real issue. If we do not know how we can actually provide the help, learning about the abandoned animal issues loses its true meaning. That is the reason we have to learn the practical methods to help the animals stay healthy and safe.

When learning how to do something, we have to take a look at the existing methods. For instance, in order to make a chocolate cake, we have to look for some successful existing recipes for baking one or go and find a good baker to learn how to bake. Learning about the ways to help abandoned animals is much more difficult than this. Therefore, it is necessary to look into the current worldwide efforts to fight against the animal cruelty, and paying attention to the approach the various animal groups are taking is meaningful.

There are numerous animal protection groups and programs that aim on ensuring welfare of abandoned animals. Some of the well-known groups are the American Society for the Prevention of Cruelty to Animals (ASPCA), the Humane Society of the United States, Best Friends Animal Society, and so on. Among these groups, let's see what efforts ASPCA is making to help the abandoned animals. ASPCA runs ASPCA Adoption Center and ASPCA Behavioral Rehabilitation Center in order to pursue their goal of preventing negligence towards abandoned animals. The adoption facility provides houses for a lot of cats and dogs waiting for adopters. In this center, many of the animals receive vaccinations, microchips, and spay/neuter procedures for potential adoptions. When the willing adopters visit the center, the behavior counselors try hard to make the best matches between the animals and the adopters through the adoption surveys. ASPCA Adoption Center also cooperates with the ASPCA Animal Hospital in order to provide the best possible medical care for the animals.

ASPCA Behavioral Rehabilitation Center is a permanent facility in Weaverville, North Carolina, which can house 65 dogs at a time. The difference between this center and the ASPCA Adoption Center is the characteristics of the animals that they accommodate. The biggest aim of this center is providing behavioral rehabilitation for fearful dogs. Some dogs that have been confiscated from places like puppy mills tend to be fearful, making it impossible for them to be adopted right away. They need special rehabilitation programs to get used to humans' love and care, to overcome their fear that have been formed by abuse, and get ready for being adopted.

This center tries to apply treatments for dogs effectively by carefully choosing which kind of dogs to accommodate and providing optimal methods for behavioral rehabilitation. The program led by this center is the result of the expansion of the successful pilot program that treated over 300 dogs for four years. The facility now provides individual spaces and areas that are similar to real manmade environments like home, outdoor play areas, etc. to every dog in the center. In those areas, the behaviorists and trainers interact with dogs and usually provide 13 weeks of treatment. When a dog seems to be ready to adapt well to 'real-life' environment and form positive bonds with humans, he or she begins to prepare for being adopted.

By taking a look at ASPCA's efforts to protect and care for abandoned animals, we can learn two important points about desirable solutions for abandoned animal issues. First, we need facilities and programs that can accommodate and treat a lot of abandoned animals without worsening their health and the level of their welfare. Although the number of the centers for protection of the animals has increased over time, large portion of the facilities are struggling with insufficient human resources and money. Therefore, building abandoned animal protection facilities under stable management is a pressing task. Second, we have to focus on specific situations that certain homeless animals are experiencing. Some abandoned animals and those without homes need special treatment due to their previous experiences of being abused. Unless we provide appropriate programs that tackle these negative situations, we would not be able to reach the expected level of preventing animal cruelty. The public's attention on these programs would eventually become a big support in the process of protecting abandoned animals.





# What Happens After Korean Reunification?

## : Expanding Social Welfare Through Universal Basic Income

이지원

### **A Step Toward Social Integration**

South Korea and North Korea held a summit in April 27th at the DMZ village of Panmunjom. At the meeting, Kim Jong-Un declared complete denuclearization of North Korea and proposed talks with U.S President Donald Trump to bring an official termination to the Korean War. The meeting was held in a convivial atmosphere with constructive results and this led to positive public discussions and response on the possibility of Korean reunification.

Presuming Korean reunification, there are still miles ahead for social integration. The first step for social assimilation is achieving economic equity between North Korea and South Korea. After the civil war, South Korea emerged from colonial rule and rapidly industrialized, whereas the North Korean economy that largely consisted of agricultural industry lagged far behind with its GDP amounting to less than 1% of the South. Authorities predict that there will be mass unemployment and an increase in poverty in the earlier stage of reunification and worry the drastic depression would extend into the next century. So, the reunification should be carried out gradually with the economic support from the South offered to level out the living standards. Contemplations should be made about the after effects of reunification, about what kind of public assistance system should be executed and to whom should the social security be provided.

### **Current Welfare in North Korea**

Even as a totalitarian state, North Korea does have a set of laws regarding public assistance and policies guaranteeing minimum livelihood. The following are laws from the North Korea Constitution that secure and boost social welfare.

### **DPRK's Socialist Constitution (Democratic People's Republic of Korea)**

#### **Chapter 2 Economy Article 25**

*The DPRK regards the steady improvement of the material and cultural standards of the people as the supreme principle of its activities. The constantly-increasing material wealth of society in our country, where taxes have been abolished is used entirely for promoting the well-being of the working people. The State shall provide all working people with every condition for obtaining food, clothing and housing.*

#### **Chapter 5 Fundamental Rights and Duties of Citizens Article 72**

*Citizens are entitled to free medical care, and all persons who are no longer able to work because of old age, illness or a physical disability, the old and children who have no means of support are all entitled to material assistance. This right is ensured by free medical care, an expanding network of hospitals, sanatoria and other medical institutions, State social insurance and other social security systems.*

#### **Chapter 3 Culture Article 47**

*The State shall provide education to all pupils and students free of charge and grant allowances to students of universities and colleges.*

However, after a series of food supply shortages and financial crisis that struck the nation in the 90s, the public assistance systems do not function properly in accordance with the principles. Still, these laws are significant in a way that they manifest the idea that the

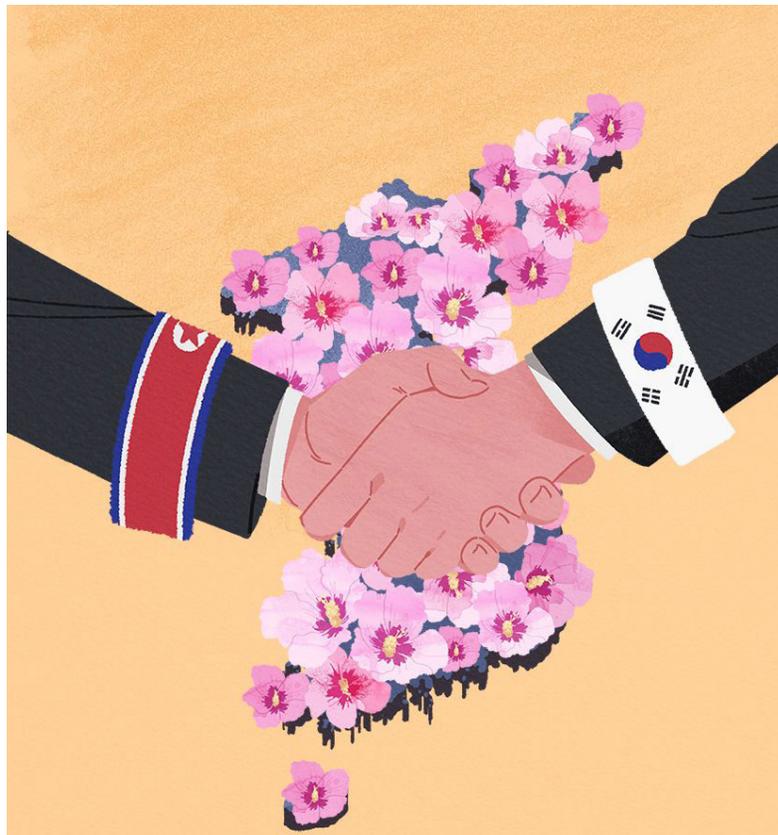
government is burdened with the political obligation to promote the happiness and common welfare of people.

### ***Applying Universal Basic Income in Unified Korea***

Because the social assistance system in North Korea has long been ineffective and the level of economic inequality between North and South Koreans is serious, the Northern and Southern part of united Korea will require different systems. Eventually the government should stop prejudicial treatments on the grounds of residence in time since they violate the notion of equity from the constitution. However considering the social and economic instability caused by the unification, temporary separate operation of welfare policies in North and South Korea should be allowed. This separation, as a means of active welfare, would protect the right to survival for the socially weak.

Kim Bok-gi suggests a new way that two different welfare policies can coexist in Korea in Unification of Korea and Guarantee of Minimum Livelihood - focusing on legal issues in the early stage. As in South Korea nowadays, if the government of reunited Korea supported only a limited percentage of people in the lower class income level, it wouldn't be able to help others who don't qualify for government support but are earning less than the minimum livelihood of South Korea. So instead, Kim Bok-gi suggests that we should apply Universal Basic Income in the northern region of united Korea. Universal Basic Income is a system providing all citizens (permanent residents) with a regular, unconditional sum of money-a sum just above the poverty line. This can not only help eradicate poverty, but also reduces much paperwork and bureaucratic procedures because other programs such as food stamps and housing vouchers would disappear. Thus, it is more transparent and efficient than the existing welfare programs. Also it enables workers to quit their job to pursue further education or better working conditions and wages.

We should take cautious measures in tackling the problem of social unification that is to come after the territorial, political unification. As a stepping stone for Korean reunification, we should make sufficient preparations in public assistance systems, among them Universal Basic Income especially.





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