

Coronavirus Cancels Major Events



▲ The 2018 Commencement Ceremony; the 2019 ceremony will be held this summer.

On Feb. 4, POSTECH officially canceled its major annual events, including the 2019 Commencement Ceremony, the 2020 Matriculation Ceremony, and the 2020 Freshman Orientation, and postponed the start of the spring semester to prevent the spread of the novel coronavirus. President Moo Hwan Kim announced such changes through a notice—"Message from the President"—which was posted on the

POVIS Announcements board.

The 2020 Freshman Orientation scheduled for Feb. 9 to 14 and the 2020 Matriculation Ceremony for Feb. 13 was also canceled. Prof. Kim Jong-kyu, the Dean of Admissions and Student Affairs, informed freshmen and their parents on Jan. 31, explaining that the university had decided that the health and safety of the freshmen were of priority. With the orientation can-

celed, information freshmen should know before enrollment, including guidelines for college life, principal education programs, and the university system, will be provided through online videos and brochures.

The spring semester of the 2020 academic year that was to commence on Feb. 17 has also been delayed by two weeks to begin on March 2. The semester will be shortened from 16 to 15

weeks and will, therefore, terminate a week later than previously planned. In the interim, POSTECH plans to conduct preventative isolation measures on members returning from China and provide protection on campus to secure a safe environment for POSTECH members.

The university is currently supervising a mandatory 14-day quarantine on all POSTECH members who have visited or transited through China. Regardless of the area of visit, the length of stay, or whether the member is on the monitoring list of Korea Centers for Disease Control & Prevention, one who has returned from China since Jan. 14 must be quarantined in a separate dormitory building or its residence for the duration of the coronavirus incubation period (14 days).

Regarding POSTECH's actions to combat the virus, President Moo Hwan Kim asked for POSTECH members' kind understanding. He said "I understand how worrying the situation is for you and your families. Our professors, staff members and partner staff are doing their best in their respective places. I ask all of you for your understanding and cooperation until the situation is under control."

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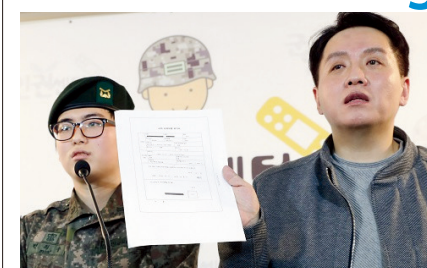
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2019-nCoV Novel Coronavirus- A Likely Pandemic Outbreak?



▲ 2019-nCoV symptoms include high fever and coughs(source:google)

On Dec. 31, 2019 China reported to the World Health Organization (WHO) of the cases of pneumonia occurring in Wuhan City, Hubei Province of China. A month later, on Jan. 30, WHO declared the Novel Coronavirus as a global emergency. There are a total of 40,653 confirmed cases of Novel Coronavirus and 910 deaths around the world. The virus has already spread in 28 different countries officially, however as diagnosis tests for the 2019-nCoV requires certain medical infrastructures, it is suspected by experts to have already been ex-

ported out to other countries as well.

2019-nCoV is a new strain of coronaviruses (CoV). CoVs are a large family of viruses with a wide range of symptoms from common cold to severe illnesses including the latest 2019-nCoV, MERS, or the SARS. As CoVs are zoonotic, referring that it is transmittable by animals and humans, 2019-nCoV is also suspected to have originated from a wild animal from a Wuhan Seafood Market as many first confirmed cases of 2019-nCoV were workers from the very market. Bats are identified as a probable source of

the virus by an article from the Nature by Peng Zhou of the Wuhan Institute of Virology, however nothing is identified or reported to be factual yet. Not much is currently known about the 2019-nCoV, including the transmission means, source of virus, incubation period, and mortality rates. Only estimations of these statistics are available. Incubation period, the time between infection and actual symptoms of diseases, is estimated to be 2-11 days. However, considering the period for SARS and MERS, the incubation period can last up to 14 days. Transmission between human has been confirmed.

The number of confirmed cases and deaths due to the Novel Coronavirus has already greatly outnumbered the SARS epidemic which occurred 18 years ago in China. During SARS, a total of 5327 cases were confirmed and 349 died in China and a total of 8098 cases were confirmed and 774 died globally during a 9 months period. However, the 2019-nCoV, during a period little longer than a month, a total of 40,197 cases were confirmed and 908 died in China and a total of 40,653 cases were confirmed and 910 died globally. Experts say that the Novel Coronavirus will likely become a pandemic- an epidemic widely spread in different continents.

In Korea, the Novel Coronavirus has 27 confirmed cases. Among them,

only 13 cases have confirmed to have visited China recently, indicating transmission outside of China. Starting from Feb. 4, all individuals with interactions with confirmed cases are to self-isolate themselves at their residence. Also all travelers from Hubei Province or those who have visited Hubei Province within 14 days are restricted to enter borders. However, criticisms point out that there are no means to officially inspect whether a traveler has visited Hubei province or not as domestic travels within China leave no traces on the passport. Also, considering the fact that over 40% of the confirmed cases are now resulting from regions outside of the Hubei province, the current regulations lack awareness of the situation. Korea has started conducting free diagnose tests in 124 different public health facilities. Schools and other institutions in Korea, including POSTECH, have postponed or cancelled classes, graduation and matriculation ceremonies for safety.

*Statistics provided on this article are last updated on Feb. 11 (GMT+9)

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Generation Z



▲ Infographic describing Gen Z

"Millennial Generation (Gen Y)," entered their late 20s to 30s, becoming the main consumer of Korea. Recently, however, Generation Z (Gen Z) has been drawing attention for having a huge impact on the consumer market. Gen Z refers to a population group that follows the Gen Y. Demographers generally classify the generation born in the mid-1990s to the mid-2000s as Gen Z. Unlike Gen Y, who grew up in a mixed analog and digital culture, Gen Z grew up exposed to the digital environment from an early age and are called "digital natives." Since most of the undergraduate students at POSTECH belong to Gen Z, the characteristics of Gen Z are similar to those of POSTECH students.

Gen Y grew up with the parents of the baby boomers in a growing economy. On the other hand, Gen Z had to undergo the aftermath of the IMF throughout its childhood with Gen X parents. Unlike the previous generation, who grew up expecting that society would continue to be affluent, Gen Z grew up worrying about future uncertainties and job shortages, which distinguishes them from others. Also, Gen Y grew up at a time when Internet cafes or communities began to gain popularity

in earnest. Gen Y expanded the relationship that the previous generation built amid closed networks such as pen pal and PC communications, paving the way for easier communication. Gen Z, however, grew up communicating with people all over the world through various Social Networking Services (SNS) amid the rapid spread of smartphones. This is why Gen Z is more personal and free-spirited in the way they get new information and relate to new people.

Gen Z is not an immediate generation with economic power, but they play a big role in household consumption decision-making based on the information gained through the Internet. With the forecast that they will reach 12% of the world's working population after 2020, the analysis of the consumption propensity of Gen Z is becoming more important for companies. The Hyundai Research Institute cited the advent of the "Gen Z" era as one of the top 10 trends in Korea in 2018. According to a survey of 15,600 people worldwide by the IBM Institute for Business Value, Gen Z has an impact on parents buying food and beverages (multiple responses, 77.0%), furniture (76.0%), household goods (73.0%), and travel products (66.0%). "The

Gen Z, which is sensitive to the trend and is good at online purchases, already has the say and decision to buy products within the home," said Oh Beom-jun, a senior researcher at Hyundai Research Institute. Rather than accepting information unilaterally delivered by existing media, Gen Z checks information on the Internet and meticulously takes care of the comparison of products on SNS. Rather than following trends unconditionally, they also seek individuality. If they emerge as the main force of the economy, the influence of existing brands will likely weaken. According to the GLOBAL CONSUMER SHOPPING SURVEY 2017 by consulting firm Accenture, Gen Z shoppers have not yet formed strong brand loyalty. Only 16% of U.S. Gen Z shoppers purchase at a single store for fashion, while 26% of Gen Y do. Park Jin-su, a senior researcher for Univtomorrow 20s lab, said that understanding Gen Z as a potential value-added consumer and considering approaches to them would be an effective strategy for companies.

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Fees for Most Dormitories Reduced



▲ Dormitories of POSTECH

The Office of Housing Services announced that dormitory fees will be adjusted taking into account diverse factors and conditions. The fees for dormitories will be reduced except for certain single rooms.

The fee for double rooms will be lowered by 5%. The fee for double rooms of dormitories before renovations decreases from 100,000 KRW to 95,000 KRW per month while dormitories after renovations increase from 147,000 KRW to 165,300 KRW. In the case of the Residential College (RC), where freshmen and sophomores are assigned to live, the fee for double rooms in dormitory #21 decreases from 174,000 KRW to 165,300 KRW per month. However, to adjust for unfairness, the fee for dormitory #20 is lowered by 10% to 15% due to its declining facilities. Therefore, the fee for double rooms in dormitory #20 where RC students live decreases from 174,000 KRW to 148,800 KRW per month. Single rooms in dormitory #20 where graduate students reside, decreases from 278,400 KRW to 250,600 KRW per month. For the same reason, to adjust for unfairness, the fee for single rooms in dormitory #19 is reduced from 264,000 KRW to 211,700 KRW per month. Sin-

gle rooms in other dormitories still require 235,200 KRW per month, unchanged.

The Office of Housing Services explained that it sets dormitory fees considering students' opinion, facility conditions, the market price of studio apartments near POSTECH and other university's dormitory fees. Subsequently, the Dormitory Council and students' opinions will be reflected through deliberations between the Dormitory Management Committee and the Student Living Committee, and finally determined through the approval of the university executive and the president.

This time, the Office of Housing Services mainly focused on students' residential satisfaction improvement and collectively reviewed both university internal situations like the dormitory facility conditions, vacancy rates and external situations like the fees of other university's dormitories and nearby studio apartments. Housing Services has strived to accept the results of the Dormitory Council survey as much as possible, and to collect opinions from students and set the reduction rate to the extent that it does not significantly worsen the financial independence of the dormitories.

Recently, a steady increase in dormitory fees provoked dissatisfaction among students. The Office of Housing Services anticipates an improvement in students' residential satisfaction and will also enhance students' trust in the university's residence welfare policy through these dormitory fee adjustments. On the other hand, due to the reduction in the fee for most dormitories, 260 million KRW of financial decline is expected but it would be complemented with effective dormitory management such as the expansion of single rooms.

Regarding further plan of the Office of Housing Services, the appropriateness of the fees for the graduate apartments and Posville (accommodation for researchers) is now being investigated, and fee reductions are positively under consideration. The Office of Housing Services stated that it would continuously listen to diverse opinions from students and establish a more reasonable policy for the fee of residential facilities by carefully examining changes in internal and external circumstances.

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POSTECH Microscope: Guamegi Startup Competition



▲ 2019 Guamegi awardee Ryoo Ji-ho (ME 17)

The Guamegi Startup Competition (Guamegi) is a program hosted by POSTECH's Research and Business Development Foundation (PRBDF) to facilitate the development and realization of creative business

ideas. This program is open to all members of POSTECH; any inspired *Postechian* can sign up for Guamegi to benefit from all the goods that it has to offer. To gain a detailed glimpse into the program, *The Postech Times* in-

terviewed Ryoo Ji-ho (ME 17), a participant and awardee of the 2019 Guamegi.

Why did you sign up for Guamegi?

Tech start-ups require a per-

son or a group with technology to commercialize it and generate revenue. Just having state-of-the-art technology does not guarantee success; an eye for the market is also needed. As an engineer, I believe that any technology that is not needed by the market is dead technology. Hence, I signed up for Guamegi to gain market insight and also to find out how the items that my team have been developing would be accepted into the market.

What was the best thing about Guamegi?

Personally, I think that the two-day camp was the pinnacle of the program. During those two days, I was able to craft my business items into actual products that customers would love and buy. I learned how to analyze the market and use it to improve my products. Lectures on how to create good presen-

tation material were also highly beneficial as it could be applied to any other context such as school presentations.

Any difficulties?

Getting rid of my original thoughts was the hardest. When I conducted market research on the items that I originally thought of, in most cases, the items were actually not that desired by the customers. Modifying those unwanted items into more desirable ones, or even coming up with new ideas was the most difficult process for me.

Any advice to future Guamegi participants?

Engineers often think that the technology they are researching is highly needed in the market. Unfortunately, this is not true most of the time. Even if the technology is highly innovative and groundbreaking, if it

cannot change people's lives in a positive way, then people will not pay for it. It could indeed be great scientific research, but any research that is not profitable cannot be regarded as useful research in the engineering world. This is where Guamegi comes in; startup competitions like Guamegi are a good opportunity to learn more about research and business in the engineering world.

Guamegi is a must for students who are interested in tech start-ups. Whether you win or not, you can learn a lot just by participating. The well-prepared mentoring programs will help transform you into a potential entrepreneur. If you have ever thought about start-ups, give it a try!

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Meta-Hologram to Send Information in Both Directions



▲ Cover of Jan. 2020 issue of Nanoscale Horizon

In the movie *Black Panther* (2018), there is a hologram image communication scene. Meta-materials enable communication using holograms. Professor Noh Joon-seok (ME, CE) and Prof. Noh’s research team have developed meta-hologram optical elements that can produce different hologram images simultaneously. The research result was published on the cover of the Jan. 2020 issue of *Nanoscale Horizon*. While television or beam projectors have only delivered information on the intensity of light, holographic technology can store information on the

intensity and phase of light, allowing images to be replayed in a three-dimensional space. Meta-materials can then be used to control the intensity and phase of light by changing size, and shape of the nanostructure. Meta-holograms, which are only 300 to 400 nanometers in size, can implement hologram images with very high quality. Current meta-hologram devices form images when light enters one direction, whereas when light enters the other direction, it does not. To solve this problem, the research team used two types of meta-surfaces. One type of meta-surface had phase information when light joined from the front, and another type of meta-surface was designed to work as light progressed from the rear. The results confirmed that different holographic images can be generated in real-time depending on the direction of the light’s progress. In order to overcome the low-efficiency shortcomings of the existing meta-hologram, the research team also incorporated the dual magnetic resonance and anti-ferromagnetic resonances that occur inside a silicon nano sto-

ry column into the nanostructure design. Meta-holograms, which were produced this way, have a high diffraction efficiency of more than 60 %, allowing them to observe very clear images with their eyes. In addition, since the newly developed meta-hologram uses silicon, it can be produced using existing semiconductor processes. Meta-holograms, which operate in both directions, are expected to be able to be a hologram platform that can provide a variety of information simultaneously to multiple users in different locations, beyond showing a single image of information in a limited location.

Reporter Park Jee-won

Disclosure of “Bad Fathers” Found Not Guilty



▲ Koo Bon-chang, the founder of “Bad Fathers”

The founder of “Bad Fathers”—a website that publicly identifies parents owing child support—was found not guilty of defamation on Jan. 15 as the local court recognised the public interest the website served. Koo Bon-chang, the founder of “Bad Fathers”, launched the website in July 2018, publicising the portrait, name, age, home address, and workplace of parents whose former partners accused them of refusing to pay child support. The website denotes that the purpose of the website is to pressure bad fathers who have failed to pay child support to pay up, explaining that ‘a child’s right to life should be given priority over its father’s publicity right.’ However, since the launch of the website, Koo was sued 16 times for defamation. From September and October 2018, Prosecutors received complaints from five parents who had their personal information uploaded on the website and filed an indictment against Koo for 3 million KRW in May of

last year. They claimed that the website includes personal information under the title “irresponsible fathers (mothers)” that can damage the reputations of the victims. On the other hand, Koo’s lawyers claimed that the real victims of this case are not the parents who have been disclosed but their children who have not received child support. They asserted that “In foreign countries, those who have not paid for child support are punished, but, in this case, the perpetrators are pretending to be victims, citing defamation.” Moreover, Koo highlighted the gravity of the issue, claiming that “there are about a million children in our country who are suffering from non-payment of child support, and this is not just a financial problem, but an important issue that is directly related to the survival of their children.” After the 15-hour-long trial, Suwon District Court acquitted the charge, ruling that the parents had brought such def-

amation upon themselves and that the disclosure of personal information on “Bad Fathers” was in accordance with the public interest. The court explained that “The defendant’s activities to make the sufferings of parents who have not received child support known without any intention to make profit can be seen as serving the public interest.” Thanks to Koo and the operators of “Bad Fathers”, 121 out of some 400 families have received previously unpaid child support, and with the accusations of defamation cleared, more are yet to come.

Reporter Kim Seo-yeon

Strong Underwater Adhesion by Synergy between Two Molecules



▲ Prof. Cha Hyung-joon (CE)

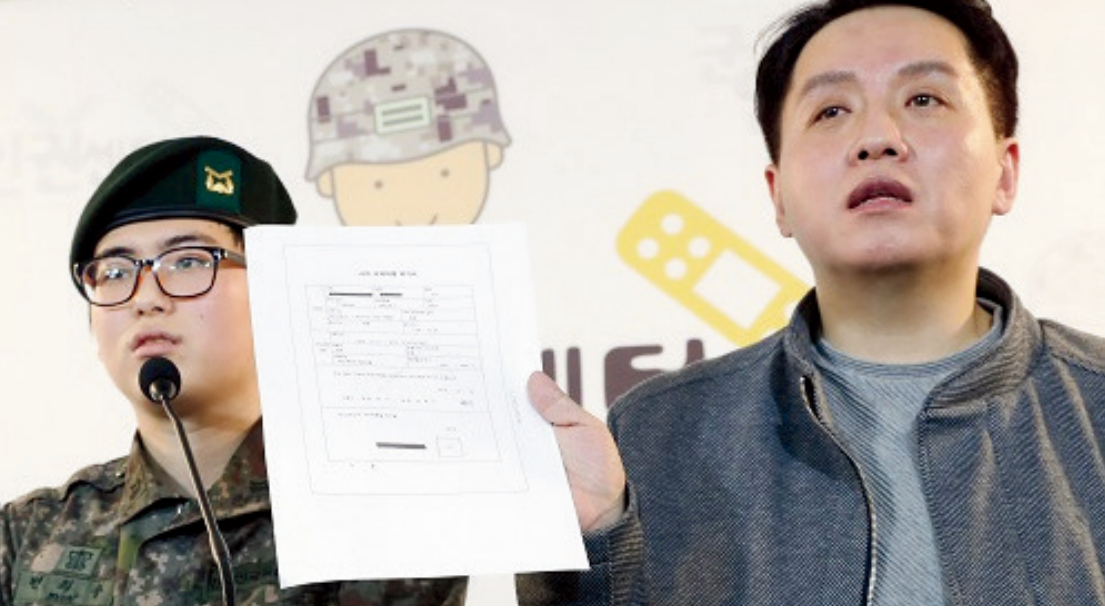
Mussels are well known for strong underwater adhesion that is not even affected by heavy waves or storms. Mussels secrete adhesive proteins when producing tough fibers called byssus to attach itself to the surface of a rock. Professor Cha Hyung-joon (CE) and his research team analyzed the adhesive proteins secreted by mussels and confirmed two molecules, Dopa and Lysine, which have strong adhesion even underwater. Also, they discovered that these molecules have a synergetic effect on mussel adh0 esions in various conditions. Previous researchers emulated the shape of Dopa to make underwater adhesives. But there has been a limitation in making underwater adhesives

as strong as the natural adhesives of mussels because it has been challenging to balance between surface adhesion and cohesion of adhesive molecules. Unlike former studies, the research team recognized an important role of Lysine in underwater mussel adhesion. The interfacial adhesive protein fp-3F, which is located in the surface of mussels, contains a great quantity of Dopa and Lysine. The research team observed the distribution of these molecules in the protein and found that these molecules were either bound to or separated apart from each other at a specific location. Based on the sequence of an interfacial adhesive protein, they synthesized three simple peptides with each different distance between Dopa and Lysine. By testing these model peptides, they discovered that the distance between Dopa and Lysine affected their synergy on surface adhesion and cohesion differently. Through molecular biology techniques, they synthesized two different proteins with artificial sequences and compared it with proteins with natural sequence to apply the same mechanism in interfacial ad-

hesive proteins of a mussel. As a result, they verified that the identical result was obtained in the proteins with artificial sequences. Prof. Cha said, “We discovered the synergy of two molecules, Dopa and Lysin, and with this accomplishment, we anticipate to produce new underwater bio-adhesives of another level.” Also, this research is expected to enlighten future studies of other adhesive proteins in nature. Their research accomplishment has been recently posted in the *Journal of Colloid and Interface Science*, the world’s prominent journal in the field of interface science.

Reporter Choi Eun-je

Korean Army Discharges Transgender Soldier



▲ Byun Hee-soo speaks in a press conference

The Korean Army said it decided not to allow a noncommissioned officer (NCO) who underwent gender reassignment surgery to continue to serve in the military as a female soldier. The decision was made in a military committee meeting that looked into the case of Byun Hee-soo, who had the surgery late last year and expressed a desire to keep serving in the military. The NCO who served as a staff sergeant in a unit located in northern Gyeonggi received gender reassignment surgery in Thailand during official leave in November last year. The NCO’s unit said it detected that the soldier was struggling with gender identity around July and then filed for leave, but it did not find out about the surgery until the NCO visited a military hospital in December, where a medical officer diagnosed the officer as having gender dysphoria, which is a class 3 disorder that can warrant discharge

from the military. After the unit learned about the surgery, it recommended that the NCO resign prematurely from service. The law governing the status of persons in the military - the Military Personnel Management Act - stipulates that deliberate damage done to one’s body can also warrant discharge. The NCO, however, refused an early discharge, filing to complete the remaining year of a three-year service as a non-commissioned officer in the military in a female brigade. Currently, no specific regulations exist on how to handle cases of soldiers who have had gender reassignment operations while in service. South Korea has no transgender soldiers, and the decision on the unprecedented case is expected to have a ripple effect on the overall rights of transgender South Koreans. Following the decision, Byun came out in public and held an

emotional press conference before TV cameras, pleading for a chance to continue to serve regardless of gender identity. “I am well aware that the military is not yet ready to accept transgender soldiers. If the military properly assigns me based upon my unique situation, however, it could create positive effects for the military as a whole,” Byun said. “I want to set a great precedent. Please allow me a chance. I am a soldier of the Republic of Korea.” ng in the opposite direction.

Reporter Lee Mi-yeon

The Conflict between the U.S. and Iran



▲Iranians tearing up the U.S. flag after the assassination of Qasem Soleimani. / Atta Kenere, AFP

On Jan. 3, 2020, the commander of Iran's Quds Force, Gen Qasem Soleimani, was killed by a U.S. drone attack in Iraq. The tension in the Middle East escalated dramatically and the dispute between the U.S. and Iran is unlikely to end easily.

A Brief Recent History between the U.S. and Iran

In 2015, Iran signed a nuclear agreement called Joint Comprehensive Plan of Action (JCPOA) with a group of world powers known as the P5+1 (the US, UK, France, China, Russia, and Germany). Under the accord,

Iran agreed to limit its sensitive nuclear activities and allow in international inspectors from the International Atomic Energy Agency (IAEA) in return for the lifting of crippling economic sanctions. However, in May 2018, U.S. President Donald Trump unilaterally abandoned the nuclear deal. In his speech, Trump called the Iran deal "horrible" and said the U.S. would "work with our allies to find a real, comprehensive, and lasting solution" to prevent Iran from developing nuclear arms. By reinstating economic sanctions, Iran's economy fell into depression. As a countermeasure,

Iran began rolling back key commitments under the nuclear deal and started its pressure campaign to force Trump to lift the sanctions. In May 2019, explosions hit six oil tankers in the Gulf of Oman. The U.S. blamed Iran for that attack but did not present evidence and Iran also denied those accusations. On June 20, Iranian forces shot down a US military surveillance drone over the Strait of Hormuz asserting that it was in their airspace. However, the U.S. military insisted that the drone was in international waters at the time and said the attack was unprovoked.

The Assassination of Qasem Soleimani

Along with the heightened tensions in Hormuz, clashes began in Iraq, where both the U.S. and Iran have exerted influence. On Dec. 27, 2019, a pro-Iranian militia in Iraq, kata'ib Hezbollah, attacked a U.S. military base, killing one American contractor and wounding several U.S. citizens. So far the attacks were aimed at strategic assets, not people. But now Iran crossed Trump's 'red line' that any harm on Americans will lead to a forceful response. Two days later, the U.S. military

retaliated by launching an airstrike on the pro-Iranian militia. On Dec. 31, Iran orchestrated an attack on the U.S. embassy in Iraq. Trump decided to send a powerful message to Iran and chose the option to kill Soleimani. On Jan. 3, 2020 the U.S. military assassinated the Iranian general using a drone near Baghdad airport. On the very next day, Trump gave remarks on the killing of Qasem Soleimani: "Under my leadership, America's policy is unambiguous: To terrorists who harm or intend to harm any American, we will find you; we will eliminate you. We will always protect our diplomats, service members, all Americans, and our allies." He also remarked that "We took action last night to stop a war. We did not take action to start a war."

The aftermath of the killing

The killing of Soleimani, who was called the most powerful military commander in the Middle East, triggered a massive wave of condolences in Iran. His funeral was held four times in different places. There were so many people that a stampede broke out and at least 56 people were killed during the funeral processions.

In retaliation, Iran carried out a ballistic missile attack on airbases housing US forces in Iraq on Jan 8. However, just hours after the missile attack a Ukrainian airliner crashed in Iran shortly after take-off. It turned out that Iran's forces fired two Tor-M1 missiles and

unintentionally shot down the airplane. The political situation in Iran has changed rapidly in the wake of the shooting down of a Ukrainian passenger jet. On Jan. 11, anti-government protests were held in Tehran shouting slogans condemning government deception about the accident. Protesters chanted slogans such as "Death to the dictator" or "They are lying that our enemy is America, our enemy is right here."

South Korea is also keeping an eye on Hormuz's tension. More than 70% of the imported crude oil in Korea passes through the Hormuz strait every day. Also, the U.S. is requesting Korea to send troops to Hormuz. In response, South Korea's Ministry of National Defense announced that it will dispatch troops to the Strait of Hormuz to better protect South Korean nationals and ships passing through the waterway. But said that the unit will operate independently instead of joining the U.S. led International Maritime Security Construct (IMSC). Nevertheless, the U.S. welcomed South Korea's decision.

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Wildfire Devours Australia



▲Australian bushfire out of control(source:google)

Australia is devastated by an on-going wildfire that has been inflicting severe damage to both Australian society and the ecosystem. Named as the '2019-20 Australian bushfire season', it is cited to be the worst wildfire seen in decades as the fire shows no indication of being extinguished, burning for over 5 months, since September 2019.

The Australian summer is notorious for its fire season. The dry, hot weather of Australia composes perfect conditions for blazes to start and spread. Fire seasons in Australia have

caused catastrophes before; 1974-75 bushfires consumed over 100 million hectares or approximately 4.5 times the size of the Korean peninsula. The 2009 Black Saturday fires killed 173 people in Victoria. This fire season is recorded to be one of the worst fire seasons since it is spearheaded by multiple unfortunate conditions; an unprecedented heat wave accompanied by brisk winds, and an arid atmosphere due to a major drought has worsened this 2019-20 Australian bushfire season.

The 2019-20 Australian wildfires has caused severe damage to Australian society. As of Jan.14, wildfires have burned an estimated of 18.6 million hectares, about 14% of the entire forest area of Australia. A total of 33 people across Australia have died, 25 victims from New South Wales (NSW). Cities on the southeast coast of Australia; states of NSW and Victoria are struggling with heavy structural destruction. Over 2000 homes have been burned to ashes in NSW only. 2019-20 Australian bushfire also poses a great threat

to the Australian ecosystem. An ecologist from the University of Sydney claimed that half billion animals have perished in NSW. Later the ecologist proposed that one billion animals including bats, frogs, and insects; which are excluded in the prior figure, are affected by the wildfire nationwide. Almost a third of koalas in NSW are expected to be killed with a third of their habitat lost. Though Koalas are spread out across the nation with a sufficient population, which spares the koalas from extinction, many other rare species are facing imminent extinction as they are centered in a specific area with a relatively low population. On Dec. 8, 2019, blazes flew across the ocean and burned Australia's one of the most important wildlife sanctuaries, Kangaroo Island. Kangaroo Island is renowned for its biodiversity and rare species. It contains several national parks, conservation parks, and wilderness protection areas including the worlds-first bee sanctuary. Experts expressed grave concerns for the endangered and unique species on Kangaroo Island as their critical habitat has been lost, and their diversity, even on the perilous level before the bushfire, is reaching its final limit.

The government of Victoria

and the government of New South Wales declared a State of Emergency on Jan. 2 in response to the deterioration of the bushfire. A declaration gives emergency services such as the Rural Fire Service the power to conduct several enforcements; close thoroughfares, control traffic, and forcibly evacuate members from the property within declared areas. Evacuation of residents and tourists have proceeded under state control and isolated residents are rescued through naval and air rescue operations launched by the Australian authorities. Residents of Mallacoota, Victoria were driven out to the beach and trapped, but were able to safely evacuate owing to a Navy vessel that rescued almost 1200 isolated residents, and an aircraft that rescued another 500. 3000 army, navy and air force reservists have been deployed, 3700 firefighters and support crew have been on the ground at any one time across the country during the worst periods. More than 240 firefighters from the US, Canada, and New Zealand arrived in Australia to help in putting out the fires. Though many personnel associated with fighting bushfires and aiding damaged communities are praised for their hard work, the Australian government has

faced criticism in the handling of bushfire crisis. Australia Prime Minister, Scott Morrison encountered public outcry over his vacation to Hawaii in the middle of the bushfire outbreak. The criticism worsened after Tony Abbot, former PM of Australia, was caught on media volunteering as a firefighter in NSW. Climate policies adopted by the Morrison government are also being questioned as the Australian government is viewed as passive on addressing the climate crisis. The PM and his administration had to face nationwide rallies protesting for the government's passivity on climate change on Jan.10. Though the PM of Australia refuses to believe the link between global warming and Australia bushfires, experts point out the Indian Ocean Dipole (IOD), which is interpreted as an effect of global warming, as the main factor of extreme conditions of the 2019-20 Australian bushfire season. The tragedy of the 2019-20 Australian bushfire season raises questions over climate crisis not only to the Australian government but also to all of us.

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Column

Since young, I loved making something. I also thought that it would be great if my inventions are used worldwide. One day, I realized that “start-up” is means to fulfill all such desires. Ever since entering graduate school, I thought maybe my research material can become commercialized. One day, a friend from my laboratory suggested me to use his doctor's thesis to establish a new company and since December of 2015, we launched an entrepreneur team under the name of ORGANPRINT. Since then, commercializing ideas derived from research was always a consideration and eventually, in March of 2019, EDmicBio, a company based on the commercialization of 3D Bio-printing-based 3D Organ-on-a-chip for drug screening, patient-specific medication, and bio-resorbable stent, was established. Organ-on-a-chip can be used for drug screening during drug development as it offers a platform that can replace

animal testing for toxicity and efficiency testing of drugs. It can possibly also be used later on for the development of patient-specific medication as an individual patient's cell can be used to personalize a chip to reflect the patient's health conditions. Other than the organ-on-a-chip, I always vision how I can introduce new items and services to the world. So I am sure that after organ-on-a-chip, I will pursue my start-up challenge with other items. Research, although exists similarities, is essentially different from start-up. While research shows the world best results, start-ups requires some trade-offs due to many factors to consider including time, money and consumer desires. For graduate students, their main priority and task is research and getting new findings. When pursuing a dream in the field of start-up as a graduate student, inevitable complexities in priorities occur. To be successful in man-

aging both tasks, skillful task management is necessary. To be honest, anyone with a doctorate from POSTECH can acquire a stable career with a high wage. But start-ups can never achieve such stability for a while and the burden of responsibility from managing the company is enormous. Plus, managing a start-up requires wisdom, courage, connections, and knowledge to handle any accidents, mistakes, and issues which will arise from fields never anticipated before. Even when understanding such requirements, starting a business may still seem unreachable. Considering this, POSTECH offers many lectures and basic information that supports students in starting a business. I also received basic education from lectures offered in many different majors in POSTECH. For some classes, I even personally conducted with the professor to re-take classes or take them after my doctorates. Lectures

offer opportunities for students to start from developing a business item, planning a business model, to actual presentation in front of investors. Multiple experiences of this process help develop a student to familiarize such steps and eventually, through challenging each class with a different unique item, students expand perspectives in business items. There are many opportunities out there on and off-campus for students to test their items, so I recommend students to participate. Lastly, when starting a technology-based company, CEOs tend to overly focus on their research and obsess on the excellence of their technology, completely ignoring the business aspect of it. In the end, the item wanted by the world possesses business value, not the one using high technology. However, many STEM field CEOs obsess with high performance and ignore the consumer aspects of an item. The high performance of an item is cer-

tainly important. However one must consider whether such a standard is required in aimed fields. Also, when presenting your item to the public, in most cases, investors will not understand the functional part of your item. Simplification in explanation is necessary for the crowd to understand your product. One must remember that such approach in a business model presentation is very different from research seminars. My goal is to develop EDmicBio into a global company to overcome diseases of the world and help foster a healthier and happier future for the entire humanity. EDmicBio is open to any individuals who wish to share this goal and develop with us. (edmicbio.com)



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Postechian Column

A Journey to CES 2020, Where Innovation Sprouts

Are you an Electronic Electrical Engineering (EEE) major or interested in things related to them? If so, there's no doubt that participating in the Consumer Electronics Show (CES) held in Las Vegas, U.S. will provide you with an unforgettable and invaluable experience. First of all, I express my appreciation for the support from the POSTECH EEE department, for providing us with a new program “Global exploration to CES 2020” for EEE junior students. The program not only gave us the precious chance of visiting CES, but also offered tours of the most popular places in neighboring regions, such as the Grand Canyon, Nevada, Hollywood, and Los Angeles. The seven day trip actually was my first time visiting the U.S. and CES, thus I was expecting something unforgettable. Frankly speaking, it was more than I expected, and I was thoroughly impressed and gained many new perspectives. CES is the world's gathering place for all those who thrive on the business of consumer technologies. It was first held in New York City in 1967 and over the years, thousands of products that have changed our lives have been announced. It has also served as the proving ground for innovators and breakthrough technologies for 50 years – the global stage where next-generation innovations are introduced to the marketplace. CES showcases more than 4,400 exhibiting companies, including manufacturers, developers, and sup-

pliers of consumer technology hardware, content, technology delivery systems and more. Apparently, CES is the perfect stage for major companies such as Google, SAMSUNG, Amazon, and LG, etc. to display the superb quality of their incoming products and brand-new technologies. I was extremely impressed by the rather grand-scaled showcases of such companies. I was more attracted to Sands-expo, however, where start-up and venture companies are gathered together and share their adventurous and experimental ideas. It is undeniable that the overall quality of smaller organizations' products were below the level of well established companies, yet I believe that I saw several sprouting seeds with potential to develop into a full bloom, and such expectations were enough to inspire this future engineer. I am researching on communication system architecture these days, and CES further offered me an opportunity to become aware of today's astonishing playing field. Actually, I was able to see that things in every field are developing at breakneck speed. In other words, the trip to CES allowed me to become a part of the widest community in a brief space of time. This short but startling time provided me with powerful motivation and inspiration for further advancement. Before we wrap things up, here are a few small tips that will make your journey to CES and California more colorful. First, before getting onto the

stage, you should download the CES app in the Appstore which gives you detailed information about where the target companies' exhibitions are located. Since there are so many exhibiting companies, you should set up your schedule carefully. Second, please enjoy the Casino, but just for fun. I was over-excited and ran through all my money while playing the slot machines. I just meant it for a joke ;). To conclude, I'm grateful for the POSTECH EEE department for offering us such a great experience, and I would like to strongly recommend that you participate in future CES conferences if at all possible



Yun Sang-bu (EEE 17)

Reporter Column

Leaving The Postech Times

On April 2, 2018, I was appointed to the position of an assistant reporter. On March 4, 2020, I will be retiring from The Postech Times. Even as I am writing this column it is surreal to imagine that it has already been two years. It really has passed in a blink of an eye. The end and closure of leaving an organization is always a sad affair. Even though I am leaving on my own accord, it is still unfortunate that I will not be able to enjoy The Postech Times reporter experience anymore. However, along with sad emotions, there is a feeling of fulfillment and happiness. During the two years, I experienced a great deal with so many people. In every aspect, my time at The Postech Times was exhilarating. Doing reporter work, writing articles, interviewing people, was exciting and fun. Along with the interesting work, cooperating and bonding with my colleagues and fellow reporters was also a pleasure. The Postech Times helped me experience something out of my normal routine. Usually, I do not take an interest in anything other than my studies. During major school events like the Postech-Kaist Science War (PoKa War) and Sunrise Festival, I would have just gone home or slept through it. But covering these events as a reporter, it made me go to events I typically would not have gone. In the end, all of them were worth my time and allowed me to understand how much work goes in to make an

article happen and I have come to appreciate it that much more. Providing coverage on-campus events of every kind, academic and non-academic subjects or writing articles introducing research was fulfilling in that it provided me with new information. Especially for the non-academic articles. In doing so, knowledge, facts, opinions I would have glossed over, I was exposed to and learned a great deal from. In a way, I was not only providing information to our readers but to myself as well. From an assistant reporter to becoming a full-fledged reporter, I could not have done it without the help of my colleagues. While being an assistant and not knowing what to do, it was my seniors that guided me. Now, juniors make working with them such a joy. After a hard semester, drinking and hanging out together, even during the semester, dining and hanging out, all those moments form an integral part of the brilliant memories I have. It is perhaps them, the relationships that I formed along the way are the most important things I will take away from my experience as a reporter. In retrospect, The Postech Times gifted me with so many precious opportunities and moments. I am leaving a bit sad, but am still incredibly happy to have worked at The Postech Times. The student reporter chapter of my life is nearing an end. It left me with forever lasting incredible memories. Even though I used plenty of

adjectives, it feels like there is no sufficient adjective that fully describes how much this experience has meant to me. Another exciting new chapter is on the horizon. I do not know what it will exactly entail, but experiences and lessons learned in my reporter chapter, will, no doubt be helpful. With this, I say thank you to all my colleagues that supported me and bid an early goodbye to all our readers.



Reporter Chae Seung-hyun