Leading Discoveries in the Era of the 4th Industrial Revolution

St. John's University, Conference Center
8000 Utopia Parkway Queens, NY 11439
Aug. 1-4, 2018 (Wed-Sat)

UKC New York 2018

UKC 2018 Report

US-KOREA Conference on Science, Technology and Entrepreneurship

UKC 2018: Leading Discoveries in the Era of the 4th Industrial Revolution

The US-KOREA Conference on Science, Technology and Entrepreneurship (UKC) 2018 will be held August 1-4, 2018 at St. John's University Conference Center in Queens, New York City, New York, United States. UKC 2018 provides valuable opportunities for cooperation between the United States and Korea. With a rich history of over twenty years, the UKC program includes symposiums, forums and workshops that cover broad areas of science and technology, including but not limited to basic science, applied science, engineering, technology, entrepreneurship and science policy.

The three pillars of the UKC 2018 program are:

- Digital Technologies/Artificial Intelligence/Blockchain
- Biomedicine
- Robotics/Autonomous Systems

US-Korea Conference (UKC)

UKC provides an environment where convergence and innovation can be ignited and implemented. It can play a major role in the Creative Economy that requires interdisciplinary integration.

UKC can play a major role in reducing the technology gap with policy makers, and build the framework to tackle global challenges through science diplomacy.

UKC fosters peer networking and mentoring, and provides a platform for current and future leaders to meet in an environment where meaningful partnerships and friendships can form and grow.

UKC Communicates Science and Technology with the public, and cultivates Science, Technology, Engineering and Math (STEM) education to empower future generations.

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Korean-American Scientists and Engineers Association (KSEA)

UKC 2018 Report

US-Korea Conference (UKC 2018) On Science, Technology, and Entrepreneurship

https://UKC2018.org

Co-Organized with
The Korean Federation of Science & Technology Societies (KOFST)
and
The Korea-US Science Coorperation Center (KUSCO)

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MESSAGE FROM UKC 2018 CHAIR

Dr. K. Stephen Suh
President of KSEA

President
DiagnoCine

Dear UKC 2018 Participants, Sponsors, and Supporters:

As the 47th president of Korean-American Scientists and Engineers Association (KSEA) and the chair of UKC2018, I want to express sincere appreciation all those participated in the 2018 US-Korea Conference on Science, Technology and Entrepreneurship (UKC2018) and associated programs in Saint John's University Conference Center, Queens, New York, USA during August 1th to August 4th. I am now happy to report that the UKC2018 was successfully held and received a great feedback from all participants. This year, KSEA supported several events on top of UKC2018. Three prelude events prior to the UKC2018 were 1. Youth Science and Technology Leadership Camp (YSTLC), 2. a joint workshop with Korea Academy of Science and Technology (KAST), National Academy of Science of USA (NAS), 3. KSEA-KOFST Next Generation Leadership Workshop. This year, UKC included a Public Session that was designed to include a two days career seminar, a month-long match-making job fair and two days of extensive public education programs. The total number of participants and visitors on all workshops, programs and UKC2018 brought together about 1200 scientists, engineers, government officials, industry executives, and policy-makers from both the US and Korea. The conference program consisted of three plenary sessions, fourteen forums, twelve symposia.

KSEA also greatly appreciates all sponsors and supporters from Korea, USA and the greater New York metropolitan region. We hope that we created a win-win opportunity within all of us, further enhancing the cooperation between US and Korea, the collaboration among KSEA members and providing community service to the region.

I am thankful to all committees of UKC2018, including Executive Committee, Program Committee and Local Organizing Committee. All of you showed dedication, extreme commitment and inspiring sprit for service to KSEA. UKC2018 was a success because of countless volunteers' hours and tireless efforts of over 150 volunteers across the USA for science and technology programs and near 90 New York and New Jersey area volunteer members for the local arrangements. We are very proud of everyone that graciously donated their time and energy for UKC2018. I hope all of you thoroughly enjoyed the networking opportunities and learning experiences during UKC2018 with the theme "Leading Discoveries in the Era of 4th Industrial Revolution".

KSEA truly appreciates supports fromthe Ministry of Science and ICT, Korean Federation of Science and Technology Societies (KOFST), Korea-U.S. Science Cooperation Center (KUSCO), the Consul General and the team from the Consulate of Republic of Korea in New York, the dignitaries of New York region and the entire team of the Saint John's University. I am proud to report to you that we all did very well together and the spirit of KSEA was strongly felt throughout all events. Lastly, I sincerely appreciate tireless efforts from our KSEA Head Quarter staff members.

Sincere thanks to all,

K. Stephen Suh
UKC 2018 Chair and KSEA 47th President

MESSAGE FROM UKC 2018 PROGRAM CHAIR AND CO-CHAIRS

Dr. Tae (Tom) Oh
UKC 2018 Program Chair

Associate Professor
Rochester Institute of Technology

Dr. Dugan Um
UKC 2018 Program Co-Chair

Associate Professor
Texas A&M Corpus Christi

Dr. Young-Choon Moon
UKC 2018 Program Co-Chair

Vice President
PTC Therapeutics

Dr. Benjamin Lee
UKC 2018 Program Co-Chair

Senior Research Associate
Weill Cornell Medicine

Dear Distinguished Guests and Participants,

On behalf of the Program Committee, we sincerely thank all the participants including sponsors, participants, attendees, volunteers, and HQ staffs who made UKC 2018 possible with great success.

The conference was designed to focus around the 4th industrial revolution in three categorical pillars, and the programs drew many interests from the conference attendees. The program offered 12 different symposiums, and most of the symposium programs were designed to collaborate with Affiliated Professional Societies (APS). The collaboration efforts brought great success in participation increase and program quality. Also, the forums collaborated with the symposium leaders to achieve the forum goals and objectives efficiently and effectively. The forums provided great programs for sharing their research and valuable networking opportunities with the prominent leaders from Korea and US. The Young Generation/Professional Forums offered valuable experience and provided leadership training and opportunities for graduate students and professionals. The conference initiated unique opportunities for Artificial Intelligence and public awareness by creating and developing the Data Science Workshop and the Public Session. The Data Science Workshop drew many interests from many domain experts including health care, computer scientists, engineers, and basic sciences. The Public Session attracted many attendees who are not scientists and engineers from New York and New Jersey areas and provided opportunities to hear prominent speakers from Korea and the US, seek job opportunities and attend seminars. The session met one of KSEA visions and missions, which promote the application of science and technology for the general welfare of society and provide community service. Lastly, YSTLC had great success, and the high school participants were very motivated and energetic throughout the YSTLC program. The program was designed to tour several top universities and research organizations as well as learn and experience current research trends and activities.

Overall the conference provided many networking opportunities and collaborations at the University setting. Again, the Program Committee would like to express heartfelt gratitude for your support, and we hope that the conference helped you to grow intellectually and professionally.

We hope to see you at UKC 2019 in Chicago and have a wonderful year!

Sincerely Yours,

Tae (Tom) Oh, UKC 2018 Program Chair
Dugan Um, UKC 2018 Co-Chair
Young-Choon Moon, UKC 2018 Co-Chair
Benjamin Lee, UKC 2018 Co-Chair

WELCOMING AND CONGRATULATORY REMARKS

K. Stephen Suh, President, Korean-American Scientists and Engineers Association (KSEA)
"Welcome to UKC 2018… where 20 different science and technology disciplines come together to identify innovative ideas, where families gather here to support the speakers the members… I welcome all the dignitaries, the honorable guests, the friends and the members of KSEA and the youth the next generation to the UKC 2018. I hope you enjoy UKC 2018... Welcome."

Myung-Ja Kim, President, The Korean Federation of Science and Technology Societies (KOFST)
"On behalf of the Korean Federation of Science and Technology Societies, I feel privileged to co-host the UKC 2018 and to share this moment with minister Yoo Young Min and distinguished guests from Korea and the US. Under the theme of "Leading Discoveries in the Era of the Fourth Industrial Revolution", it is meaningful that the 2018 conference is taking place here in New York City. That is because NYC has been the most prominent symbol of the universe of financial and cultural progress as well as the economic capital in the United States. Moreover as home to preeminent universities and research institutions, New York and nearby Boston are contributors of intellectual capital which makes 2018 UKC venue the most fitting representative to discuss our designated theme… I would like to convey my sincere thanks to President Steven Suh and dedicated staff and volunteers of KSEA who have displayed exemplary service in preparation of this marvelous conference. I wish you all the best and happiness in your future endeavors."

Jung-Hye Roe, President, National Research Foundation of Korea (NRF/KUSCO)
"It is my special privilege and honor to welcome you all to the 2018 US-Korea conference on Science, Technology and Entrepreneurship. On behalf of the Korea-US Science Corporation Center called KUSCO and NRF, National Research Foundation of Korea, I would like to give my sincere thanks to all the participants and speakers, policymakers, leaders of the academic and research communities, business executives and young researchers for taking the time out of their busy schedules for this conference. The UKC has served as a unique arena for multidisciplinary interactions among academics industrial leaders and policymakers for exchanging and sharing valuable ideas and performance, geared toward the vision of promoting Korea US cooperation. As the theme of the UKC 2018 highlights, we are currently experiencing unprecedented technological changes and a digital revolution which will transform our society in every aspect. Not to mention the future of economic growth, quality of life, health and well being. In this respect, this year's theme "Leading Discoveries in the Era of the Fourth Industrial Revolution" is very timely and appropriate. I believe that this conference will provide a valuable chance for all the movers and shakers of innovation to ensure our readiness for the revolutionary changes in our society that are already happening."

WELCOMING AND CONGRATULATORY REMARKS

Young Min You, Minister, Ministry of Science and ICT (MSIT)
"Please allow me to extend my sincere congratulations for the opening of UKC 2018... I wish in the future, UKC can be a significant venue where the science and technology communities of both Korea and the US can communicate and promote networking and the Ministry of science will provide full support for it..."

Grace Meng, US Congresswoman, the 6th District of New York
"I am very honored to join all of you here today at the 2018 US-Korea Conference on Science Technology and Entrepreneurship... I want to applaud KSEA for the critical work it does on behalf of Korean-American scientists and engineers and fostering cooperation between the US and South Korea. Together our countries are working on groundbreaking research and development projects that would change our lives... What you do is so important and I'm proud of joining you here today. We are all very inspired by the topics of this conference. I wish you a very successful conference and every great success as you continue to make new discoveries that advance both of our nations."

Ron Kim, Member of the New York State Assembly
"I join my colleague, Congresswoman Grace Meng, in thanking UKC and all the organizers and St. John's University for being a gracious host for this wonderful annual event of US-Korea summit of scientist, technologist, engineers and academics... We are now in a position as Korean-Americans to co-create value which is a whole different level and that's what I think this conference is all about. I hope we can get there and I look forward to trying some new ideas with you…"

Simon Geir Møller, Interim Provost, St. John's University
"...Today, we see a need for collaboration across disciplines, the need for partnerships, the need to step out of our comfort zone and to embrace change. This conference, to my mind, provides a solid platform for all that I've just described. My hope is that during this conference we will together form partnerships and find solutions that address common global challenges… I welcome you to St. John's University..."

MESSAGE FROM THE MINISTER

Young Min You

Minister
Ministry of Science and ICT

Dear Respected Members of the Science and Technology Community!

I am honored to address this session. I am Young Min You, Minister of Science and ICT of the Republic of Korea.

Please allow me to extend my sincere congratulations for the opening of UKC 2018, which celebrates its twentieth anniversary this year.

First, I would like to express my gratitude to Dr. Myung-Ja Kim, President of the Korean Federation of Science and Technology Societies (KOFST); Dr. Kwang Soon Suh, President of the Korean-American Scientists and Engineers Association (KSEA); Dr. Jung Hae Rho, President of the National Research Foundation (NRF) and everyone who worked hard to make today's event possible.

My thanks also go to Representative Grace Meng, Member of US House; Representative Ron Kim, Member of the New York State Assembly; Interim Provost Simon Geir Moller of Saint John's University, and other distinguished guests for your presence today.

The Korean-American Scientists and Engineers Association, established in 1971 has evolved together with the history of the Republic of Korea in the development of science and technology.

Promising Korean-American scientists in a far-away foreign country who grew up by competing against local scientists returned to their impoverished home country immediately, when called.

They worked hard to contribute to a remarkable economic growth of Korea, which the whole world envies.

Once again, I would like to express gratitude to all of you for your commitment and devotion, by taking this opportunity.

Dear Honorable Korean-American Scientists and Engineers!

Global society is faced with opportunities and challenges of the Fourth Industrial Revolution, brought on by rapid development of digital technologies.

Since the inauguration of President Moon Jae-in government, the Republic of Korea has pursued an innovative growth strategy branded as the "I-KOREA 4.0" as to realize a people-centered Fourth Industrial Revolution, in opening a new chapter for science, technology and ICT.

First, development and utilization of technologies in the field of data(D), network(N) and AI(A), so called the "DNA of the Fourth Industrial Revolution" have been promoted.

In particular, 5G mobile communication service, core infrastructure of the Fourth Industrial Revolution will be commercialized for the first time in the world, in March next year.

Also, R&D investment based on bottom-up approach will be doubled to innovate a national R&D system such as creating a researcher-oriented R&D environment.

Many projects have been implemented so that these tangible outcomes can result in an improved quality of people's lives.

UKC 2018 is held under the theme of "Leading Discoveries in the Era of the Fourth Industrial Revolution". In order to make the theme a reality, I kindly ask for your support in conducting research which plays a pivotal role in leading the hyper-connected world of intelligent devices.

MESSAGE FROM THE MINISTER

With such great effort, I hope you can heighten your status as outstanding Korean-American scientists, foster innovation in overall society, and go on to contribute to the prosperity of the humanity.

Distinguished Guests!

The historic South and North Korea Summit took place on the 27th of April. With the rest of the world watching, the leaders of the two Koreas took a step forward in building peace on the Korean peninsula which has been a milestone event.

Such progress made towards a peaceful Korean peninsula with shared prosperity has only been possible thanks to close cooperation with our ally, the U.S.

I believe all of you are precious assets in playing a bridging role between our two countries, in improving relations between Korea and the U.S. who are great partners.

I wish in the future, UKC can be a significant venue where the science and technology community of both Korea and the U.S. can communicate and promote networking,
and the Ministry of Science and ICT will provide full support for it.

Once again, I would like to congratulate the hosting of UKC 2018 and wish you good health and happiness.

Thank you.

Minister Young Min You
of Ministry of Science and ICT

Machine Learning in Autonomous Systems: Theory and Practice

DR. DANIEL DONGYUEL LEE

Professor in Electrical and Computer Engineering at Cornell Tech
Executive Vice President
Samsung Research

Dr. Daniel Dongyuel Lee is currently a Professor in Electrical and Computer Engineering at Cornell Tech and the Executive Vice President for Samsung Research. Until this past year, he was the UPS Foundation Chair Professor in the School of Engineering and Applied Science at the University of Pennsylvania. He received his B.A. summa cum laude in Physics from Harvard University and his Ph.D. in Condensed Matter Physics from the Massachusetts Institute of Technology in 1995. After completing his studies, he became a researcher at AT&T and Lucent Bell Laboratories in the Theoretical Physics and Biological Computation departments. He is now a Fellow of the IEEE and AAAI and has received the National Science Foundation CAREER award and the Lindback award for distinguished teaching. He was also a fellow of the Hebrew University Institute of Advanced Studies in Jerusalem, an affiliate of the Korea Advanced Institute of Science and Technology (KAIST), and organized the US-Japan National Academy of Engineering Frontiers of Engineering symposium and Neural Information Processing Systems (NIPS) conference.

Dr. Lee gave the first Plenary Speech during Thursday's Opening Ceremony for UKC 2018. The speech was about current artificial intelligence (AI) systems for perception and action incorporate a number of techniques: optimal observer models, Bayesian filtering, probabilistic mapping, trajectory planning, dynamic navigation and feedback control. He described and demonstrated some of these methods for autonomous driving and for legged and flying robots. In order to model data variability due to pose, illumination and background changes, low-dimensional manifold representations have long been used in machine learning. He highlighted the role of neural representations and discussed differences between synthetic and biological approaches to computation and learning to explain how well such manifolds can be processed by neural networks.

Role of Engineers in Solving Grand Challenges

DR. MUN CHOI

President
University of Missouri System

Dr. Mun Y. Choi became the 24th president of the University of Missouri System on November 2, 2016. He formerly served at the University of Connecticut as the provost and executive vice president.

During the second Plenary Session of UKC 2018, Dr. Choi presented a speech titled, "Role of Engineers in Solving Grand Challenges." Main idea of his speech was that engineers and scientists are responsible for predicting problems and finding solutions. Dr. Choi presented human based future challenges stemming from current megatrends such as population growth and an aging population.

After focusing on the economic and wealth disparities in the world, he emphasized importance of educating engineers in the first world to solve problems in third world and claimed it is one of the most immediate challenges for engineers to solve over the next decade.
Dr. Choi concluded his speech by identifying the diverse environment, and he encouraged collaboration between the diverse voices to solve the many challenges that we are faced with today.

Robots for Physical Interactions

DR. SANGBAE KIM

Director
Biomimetic Robotics Lab in MIT

Dr. Sangbae Kim gave the third Plenary Speech during Saturday's Closing Ceremony for UKC 2018. He is the Director of Biomimetic Robotics Lab and an Associate Professor of Mechanical Engineering at Massachusetts Institute of Technology. His talk, titled "Robots for Physical Interactions", guided the audience through the evolution of his research on bio-inspired robot design which extracts principles from animals. Dr. Kim also elaborated on his advancements in some of his modular innovations such as the high torque density motor.

In the world of robotics today, there are very few designs that demonstrate true dynamic physical interactions. Walking on uneven ground is a good example of a dynamic physical interaction. It is simple for a human, but humorously difficult for robots as demonstrated by a compilation video of robots falling in the 2015 DARPA Robotics Challenge. Dr. Kim's research looked to animals for inspiration in ground mobility. Among his achievements is the world's first directional adhesive inspired from gecko lizards. A robot called Stickybot, which utilized his directional adhesive to climb smooth vertical surfaces, was featured in TIME's best inventions in 2006.

Recently, his advancements in the development of the MIT Cheetah has been gaining the attention of more than 300 media articles. The MIT Cheetah began as a four-legged robot that fundamentally emulated the running mechanics of a cheetah, and by adding capabilities that only a machine could do, it has evolved into a mechanical machine that can land from a jump without creating too much damaging impact and run over uneven terrain even without a camera sensor. One of the technologies utilized in the MIT Cheetah series is a mechanical innovation that utilizes a high torque density motor in the legs of the robot. Compared to other traditional legged locomotion designs, it minimized distal mass, allowed maintenance of high power without sacrificing the ability to minimize mechanical impedance, and also could be doubled as a touch sensor by the energy returned to the electric motor. On top of these design benefits, the high torque density motor showed higher energy efficiency, allowing the MIT Cheetah to be similarly as energy efficient as a real cheetah.

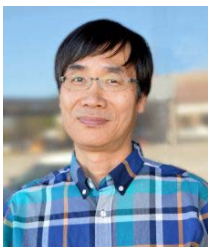
Tech Talks

Cryptocurrency and blockchain have been pushing the boundary of the IT industry for the last couple of years. Many companies and industries that are pursuing blockchain technology in varieties of applications have been increasing drastically especially in healthcare and financial sectors.

Today, we have three prominent speakers who are expert in cryptocurrency and blockchain industries, and the speakers range from company founder, evangelist, and policymaker. They will share their knowledge and trend of the blockchain.

SPEAKERS

"The role of decentralized public blockchain as the backbone of the new Internet"
The decentralized public blockchain will be the foundation of the next generation of the internet. The current internet has done a great job of distributing and sharing information, but the same is not true of the transfer and exchange of value. Here, the internet's potential remains limited by the need for intermediaries to guarantee transactions. By removing the need for dependence on these intermediaries, the internet can move both information and value seamlessly at a global scale.



MR. WOOHYEON (BRIAN) CHEONG

Founder
Seoul Ethereum Meetup, Acecom, Inc.

Blockchain smart contracts enable programmable money on the internet. With programmable money, we can outline the specific conditions required for the execution of a transaction that are enforced by the contract itself and do not require additional intervention by an intermediary. Beyond direct financial transactions, smart contracts can handle much broader ranges of activity in the digital economy: production, distribution, circulation, and consumption of digital goods and services. Increasing autonomy, as facilitated by shared public networks, will fundamentally reform the value structure of the digital economy.

For certain applications, a permissioned private blockchain or consortium blockchain are better suited to deliver performance and privacy than their public counterparts. However, even in these cases, public blockchains will serve an important role interconnecting chains and providing a base layer of security.

Biography
Woohyeon Cheong is the founder of Seoul Ethereum meetup and CEO of Acecom, Inc. Since 2014, he has focused almost exclusively on the Ethereum blockchain and decentralized application development. He has founded or assisted in the launch of several leading online cryptocurrency and blockchain communities and offline meetups in Korea. Within these communities, he has worked to facilitate and inform discussions on the technical backgrounds of blockchains, the core principles of cryptoeconomics, smart contract programming, the socioeconomic implications of decentralized applications, and business strategies for the development and deployment of decentralized applications.

Prior to this engagement, Woohyeon founded ResellerBid, Inc. which developed a business to business global e-marketplace for the computer component industry and worked as CEO for Geogan, Inc., an ecommerce solution company.

Woohyeon received his B.A. and M.A in communications at Seoul National University. He subsequently conducted socio-economic research on internet and telecommunications business during his graduate study in Telecommunications Policy at the University of Texas at Austin.

MR. ROCKY E. FIKKI

St. Louis Ethereum Meetup Organizer & SafeCommerce, Inc.

"Blockchain Technologies in the USA - Current & Future"

An overview as to the current state of blockchain and what future opportunities this paradigm offers. Blockchains will be the building blocks of the foundation for the new industrial revolution. They will enhance and integrate the old foundations society has been built on. Blockchains systems and smart contracts will allow us to enhance the rules and governance systems as we currently know them. This will allow for a more structured, fair, streamlined and unambiguous decision- making system. Automated, guaranteed and trustless systems are the way of the future. These systems will offer much better security compared to what we currently have. The advent of rigorous user controlled identity systems is just around the corner. The blockchain as a new interoperable conglomerate of many chains will usher in a truly global database where many chains co-exist based on a variety of needs and use cases. Industry will be forced to adapt in order to be competitive. The efficiencies and cost savings will be astronomical and organizations will be required to adapt to this new paradigm or they will be left behind. Users of these systems will have greater control over their data, and many new asset streams will be configured to bring about a tokenized asset revolution. The blockchain revolution will foment a societal transformation that has transactions as the engine that drives it forward. Get ready for the new frictionless economy of the future with this great new collaborative infrastructure known as the blockchain.

Biography

Rocky Fikki has been a technology entrepreneur for decades, he was one of the primary Java programming language evangelist

during the early Java years. He was the founder of JARS – Java Application Review Service catering to the global developer community. He was nominated by Sun Microsystems and IBM as the President of the Java Developer Alliance. Rocky is an Internet project visionary and evangelist with substantial business, technical and promotional experience. His organization has built a variety of functional software solutions. Some products include JVMI(Java Virtual Machine Invoker), DigitalKey, JSNTP, Jftp, mapme and gifcanvas. In more recent times He has been at the forefront of the blockchain revolution, specifically in the ethereum universe. He currently is at work on his start-up SafeCommerce which is an incentivized payment guarantee service on the blockchain. Rocky also is the founder and manages the Ethereum Saint Louis Meetups. He is very active as a software developer and proponent in the ethereum community.

KSEA AWARDS RECIPIENTS

• Outstanding Contribution to KSEA Award (Presented by KSEA)

Dr. Hongtaik Thomas Hahn
KSEA 28th President

Professor Emeritus at UCLA
Editor-in-Chief of Journal of Composite Materials

Dr. Hongtaik Thomas Hahn is Professor Emeritus at UCLA and Editor-in-Chief of Journal of Composite Materials. He received his Ph.D. (1971) from Pennsylvania State University and B.S. (1964) from Seoul National University. Dr. Hahn retired from UCLA as Raytheon Distinguished Professor, and currently serves as Chair of KSEA's Small/Medium Enterprise (SME) Committee which reaches out to SMEs to build stronger synergistic partnerships.

As the 28th President of KSEA "in residence," Dr. Hahn organized an annual conference, which he first named as the US-Korea Conference (UKC), to promote synergistic fusion between science and technology on one side, and entrepreneurship and leadership on the other. His other services for KSEA include various committee memberships, technical group councillorships, chapter presidencies, and volunteer work for SoCal Chapter.

Dr. Hahn is world-renowned in composites science and technology. Prior to UCLA, he taught at Pennsylvania State University and Washington University in St. Louis after his research positions at AFML and LLNL. He was Chair of Mechanical and Aerospace Engineering Department at UCLA, AFOSR IPA Program Manager, President of KIST, President/Fellow of American Society for Composites, and President/World Fellow of Internal Committee on Composite Materials. He is a recipient of numerous awards and honors including the 1999 Hoam Prize in Engineering and ASME Fellow.

• Engineer of the Year Award (Presented jointly by KSEA and KOFST)

Dr. Daniel Dongyuel Lee

Professor
Cornell Tech
Executive Vice President
Samsung Research

Dr. Daniel Dongyuel Lee is currently Professor in Electrical and Computer Engineering at Cornell Tech and Executive Vice President for Samsung Research. Until this past year, he was the UPS Foundation Chair Professor in the School of Engineering and Applied Science at the University of Pennsylvania.

His research focuses on understanding general computational principles in biological systems, and on applying that knowledge to build intelligent robotic systems that can learn from experience. Dr. Lee is internationally recognized for his long-standing contributions in the areas of artificial intelligence, machine learning, biologically inspired computation, and robotics. His work has enabled autonomous systems to perform intelligent perception, decision making, and motor control in unknown and dynamic environments by learning better representations and abstractions.

He received his A.B. summa cum laude in Physics from Harvard University and his Ph.D. in Condensed Matter Physics from the Massachusetts Institute of Technology in 1995. After completing his studies, he was a researcher at AT&T and Lucent Bell Laboratories in the Theoretical Physics and Biological Computation departments. He is a Fellow of the IEEE and AAAI and has received the National Science Foundation CAREER award and the Lindback award for distinguished teaching. He was also a fellow of the Hebrew University Institute of Advanced Studies in Jerusalem, an affiliate

KSEA AWARDS RECIPIENTS

of the Korea Advanced Institute of Science and Technology, and organized the US-Japan National Academy of Engineering Frontiers of Engineering symposium and Neural Information Processing Systems (NIPS) conference.

• Entrepreneur of the Year Award
(Presented jointly by KSEA and Maeil Business Newspaper)

Dr. Kook-Wha Koh

President and Founder
Chrysan Industries Inc.

In 1977, Dr. Kook-Wha Koh founded the Chrysan Industries Inc., headquartered in Plymouth, Michigan. Since then the company has become a leading global supplier of automotive Lubricants and specialty chemicals. Chrysan (the name means "Chrysanthemum" in Korean) owns patents in Metalworking Fluid Technology, formulated cutting oils, and synthetic Coolants, and has repeatedly been recognized for product and supplier excellence by major manufacturers such as General Motors and Ford. The company now has facilities and partners globally including locations in the U.S, China, and Mexico. Chrysan has received various accolades such as 2001 Minority Supplier of the Year from The Michigan Minority Business Development Council (MMSDC), 2005 Family-Owned Small Business of the Year from Michigan Small Business Development Center, 2006 Salute to Excellence Award from Asian Pacific American Chamber of Commerce (APACC), and most recent 2018 Fastest Growing Asian Business from US Pan Asian American Chamber of Commerce (USPAACC)

Dr. Koh earned BS and MS degrees in chemical engineering from the Seoul National University and immigrated from South Korea in 1965 to earn her doctorate in chemical engineering from the University of Iowa. She served as the KSEA Michigan Chapter President, 14th Administration from 1985 to 1986, and KSEA HQ Auditor, 7th Administration. In 2017 Dr. Koh was recognized by Korea Economic Institute of America (KEI) as the leader in science & technology. KEI recognizes prominent local and national Korean Americans that have made significant contributions in their field and honor them on Korean American Day every January. Dr. Koh is also the author of "Across the 38th Parallel" an autobiography published in 2005 and "Hopping Seven Continents," cowritten with her husband Kwang Koh in 2013 and contributed to "Asian Americans in Michigan: Voices from the Midwest in 2015."

KSEA AWARDS RECIPIENTS

• Outstanding Chapter and Chapter President Award

Dr. Sukjoo Choi
South Texas Chapter President

Principal Engineer
Genesis Oil and Gas

Chapter President, Dr. Sukjoo Choi currently serving as the second term President of South Texas Chapter which leads the Chapter membership rising from 151 to 253 KSEA memberships over last three terms. South Texas chapter has been hosting NMSC (more than 10 years) and West Gulf Coast Regional Conference (since 2009). More than 20 technical seminars and community services served by the members of the organization. Events that included were Young Generation Forum, West Gulf Coast Regional Conference, Young Professional Networking Event and Texas Medical Center Postdoctoral Advising Seminar. They raised funds about $10,000 plus every terms excluding the support from HQ & KUSCO. CP and other members attended 100% of Council meetings and UKC Activities. South Texas Chapter has been maintaining 501c3 status. South Texas Chapter hosted YGTLC 2015 held in Houston. Also the chapter has been promoting YG membership drives at University of Rice, Texas A&M University, University of Houston and University of Texas Health Center. ST Chapter is actively supporting YG, KWISE activities and other cooperative programs with other professional and community organizations. ST Chapter has not received the same award in the last 3 years. Overall, South Texas Chapter and CP Dr. Sukjoo Choi are well qualified for the award on the basis of the overall chapter activities and CP Choi's dedicated services to KSEA.

• Young Generation Leadership Award

Ms. Stella Soyoung Chun
YGPF 2018 Chair

Technical Sales Specialist
Thermo Fisher Scientific

Stella Chun is a technical sales specialist at Thermo Fisher Scientific and had been a sales account manager in 2014-2017. She received her BS in Biopharmaceutical Science from University of Ottawa in 2009 and MS in Medical Genetics from University of British Columbia in 2012. Stella has provided an outstanding YG leadership and voluntary services for KSEA for the last 9 years through various positions such as YGTLC Chair/Co-Chair/Advisor/Organizer, YG Director for 45th & 46th admins, YG Committee member, and UKC YG Professional Forum Chair/Advisor/Co-chair/Organizer. For YGTLC/Ygnite Stella initiated a few signature sessions including speed-networking, power of habit and how to sell yourself which enlightened the conference and created the more inclusive environment for new participants. As the chair of YGTLC2017, she displayed excellent leadership and organizational skills so that the entire conference could be executed as planned. Her leadership for YG activities and her contribution to KSEA HQ activities are well recognized.

2018 YOUNG INVESTIGATOR GRANT WINNER

The KSEA Young Investigator Grant is the KSEA's highest recognition given to young professionals who earned a doctoral degree in science or engineering, and have been working in academia, industry, or government for no more than 6 years after the degree. The grant of $10,000 will be awarded to the recipient.

Dr. Si Hong Park

Assistant Professor
Oregon State University

Dr. Si Hong Park is an Assistant Professor at the Department of Food Science and Technology of Oregon State University. He received his B.S. in 2004, M.S. in 2006 from Kyung Hee University and his Ph.D. in Cell and Molecular Biology from the University of Arkansas in 2013. Until joining Oregon State University in 2017, he continued his research as a post-doctoral associate at the University of Arkansas after he received his Ph.D. degree.

His research is focused on a food safety program development including genomics, metagenomics (microbiome and whole genome sequencing), and transcriptomics based on a next generation sequencing and bioinformatics. Specifically, his works on the development of feed supplements (prebiotics, probiotics and antimicrobials) to replace the antibiotic growth promoter have been published in several high impact journals. He has published 76 peer reviewed articles (64 research, 7 review and 5 book chapters) in coveted journals and he also has an excellent citation record as a young investigator.

With the KSEA Young Investigator Grant, he will investigate "Application of molecular-based assays for foodborne pathogens detection and indicator bacteria identification associated with food safety and quality." The proposed work aims for 1) development of the multiplex polymerase chain reaction (PCR) for simultaneous detection of foodborne pathogens in poultry products, and 2) identification of overall microbial population changes and indicator microorganisms in poultry products during storage period via next generation sequencing. Dr. Park desires that his research contributes to the development of the rapid molecular-based methodology, which can monitor crucial foodborne pathogens during food storage as well as food processing.

Dr. Jung-Hun Seo

Assistant Professor
University of Buffalo, SUNY

Dr. Jung-Hun Seo is an Assistant Professor at the Department of Materials Design and Innovation, University at Buffalo, The State University of New York. He received his B.S. in 2006 from Electrical Engineering, Korea University and M.S. in 2011 and Ph.D. in 2015 from Electrical & Computer Engineering, University of Wisconsin-Madison, respectively. Before he joined the SUNY in 2016, he worked at the University of Wisconsin as an Assistant Scientist after he received his Ph.D. degree.

His research is focused on (a) development of next generation flexible electronics and optoelectronics, (b) novel nano/micro fabrication processes, and (c) development and heterogeneous integration of novel low-dimension or ultra-wide bandgap semiconductors. His recent work was highlighted in a high impact journal that demonstrates the integrated flexible bipolar-complementary metal-oxide-semiconductor thin-film transistors. As a junior faculty, Dr. Seo has already demonstrated scientific scholarship with measurable impacts. He has published ~70 peer-reviewed articles with over 1,600 citations and holds 9 US patents. He has received several research grants including a grant from DOD-DARPA to develop new materials for high power and high frequency transistors.

With the KSEA Young Investigator Grant, Dr. Seo will investigate "Innovative approach to integrate two dissimilar wide bandgap semiconductors toward efficient energy conversion device." The proposed work aims to provide a comprehensive solution to develop efficient high power switches, which will lead to enhanced switching performance for today's power electronics. Dr. Seo desires to spur transformative technologies that broadly affect daily life in the area of electronics, optoelectronics, and solar energy harvesting.

Digital Technologies/Artificial Intelligence/Blockchain Symposiums		
CIT	Computer Sciences and Information Technologies	Chair: Taehyun Hwang (Cleveland Clinic) / Co-Chairs: Jinoh Kim (Texas A&M at Commerce), Soo-Yong Shin (Sungkyunkwan Univ.) / KOCSEA Hee Song Han (Apple)
EEC	Electrical, Electronics and Communications	Chair: Gon Namkoong (Old Dominion Univ.) / Co-Chairs: Yong-Kyu Yoon (Univ. of Florida), Kwang Oh (State University of NY at Buffalo)
MAS	Math/Applied Math/Statistics	Chair: So Eun Kim (Univ. of Texas Health Science Center) / Co-Chairs: Yunho Kim (UNIST)

Biomedicine Symposiums		
BME	Biomedical Engineering	Chair: Ick Chan Kwon (KIST) / Co-Chairs: Ho-Wook Jun (Univ. of Alabama, Birmingham), Jennifer Shin (KAIST) / KBMES Hanjoong Jo (Emory Univ./Georgia Tech)
BMP	Bio, Medical and Pharmaceutical	Chair: Young-sup Yoon (Emory University) / Co-Chairs: Woong Yang Park (Samsung), In Hyun Park (Yale University) / KWISE Hee-Yong Kim (NIH), KASBP Yun Choe & Gyoonhee Han (Yonsei Univ.)
CHE	Chemical Engineering	Chair: Su Ha (Washington State Univ.) / Co-Chairs: Jae W. Lee (KAIST), Hyunmin Yi (Tufts Univ.)
CHM	Chemistry	Chair: Jong-in Hahm (Georgetown Univ.) / Co-Chairs: Dong Hee Son (Texas A&M Univ.), Sungjee Kim (POSTECH)
FAN	Food, Agriculture and Nutrition	Chair: Sung Woo Kim (NCSU) / Co-Chairs: Hong-Sik Hwang (USDA), Kwang-Geun Lee (Dongguk University) / KAFTA Youngmok Kim (Synergy Flavors, Inc.), KWiSE Hee-Yong Kim (NIH)

Robotics/Autonomous Systems Symposiums		
CEA	Civil, Environmental, and Architecture	Chair: Boo Hyun Nam (University of Central Florida) / Co-Chair: Kitae Park (KICT) / KOTAA Yong-Rak Kim (Univ. of Nebraska), KSCEE Youngsoo Kim (NCSU)
MAN	Mechanical, Aerospace, and Naval Engineering	Chair: Eon Soo Lee (NJ Institute of Technology) / Co-Chairs: Keunhan (Kay) Park (Univ. of Utah), Myung Yung Jeong (Pusan National Univ.)
MSE	Materials Science and Engineering	Chair: Jeong-Hyun Cho (Univ. of Minnesota) / Co-Chairs: Chang-Yong Nam (Brookhaven National Lab.), Jang-Sik Lee (POSTECH)
PHY	Physics	Chair: Chueng Ryong Ji (NCSU) / Co-Chairs: Kyungseon Joo (Univ. of Connecticut), Bum-Hoon Lee (Sogang Univ.)

Computer Science and Information Technology Symposium

TAEHYUN HWANG, PhD
Symposium Chair

Principal Investigator
Cleveland Clinic

JINOH KIM, PhD
Symposium Co-Chair

Assistant Professor
Texas A&M at Commerce

SOO-YOUNG SHIN, PhD
Symposium Co-Chair

Professor
Sungkyunkwan University

The Computer Sciences and Information Technologies (CIT) symposium encompassed diverse areas of research and development in CS/IT fields including Artificial Intelligence (AI), Deep Learning, Machine Learning and Big Data. In this year, we also introduced various interdisciplinary fields that CIT play a significant role such as Machine Learning/AI in healthcare and Blockchain in Healthcare.

The CIT Symposium consisted of four regular sessions, and one poster session.

KEY MESSAGES:

- The CIT symposium had speakers from both industry and academic who lead cutting-edge research in the field of CIT.
- The most of research presentations inspired the need for interdisciplinary research such as big data, healthcare, the blockchain, AI/Machine Learning and Data Science.
- Multidisciplinary research presentations were most dominant ones indicating CIT field plays a crucial role of various industry and academic research.
- Industry including SK, Hyundai motors, etc. is eager to engage more researchers from CIT.

CRITICAL CHALLENGES:

- Hard to invite top-researchers including Korean-US scientists to the symposium. The symposium needs a better reputation to attract top-notch scientists speakers with benefits to provide an opportunity to meet with other researchers who lead the field. The UKC conference and symposium still lack such benefits.
- Two or more related sessions offered in parallel (e.g., Healthcare) and better to be organized as one session.
- Need more participation from young generations in particular who seek for opportunities in CIT area.

FUTURE DIRECTIONS:

- More interdisciplinary sessions with other sessions that are involved with CIT.
- More technologies and collaborations in the industry and academia.
- More various topics should be included in CIT session including Natural Language Processing, Computer Vision, Human-Computer Interaction, AR/VR technologies, etc.

Electrical, Electronics, and Communications Symposium

GON NAMGOONG, PhD
Symposium Chair

Associate Professor
Old Dominion University

YONG-KYU YOON, PhD
Symposium Co-Chair

Associate Professor
University of Florida

KWANG OH, PhD
Symposium Co-Chair

Professor
University at Buffalo State
University of New York

The Electrical, Electronics, and Computer Engineering (EEC) Symposium was designed to provide emerging technologies and diverse developments in a wide range of disciplines of Electrical and Computer Engineering. With the success of the global internet and the increasing importance of wireless mobile communications, this symposium provided a platform to introduce latest innovations as well as showcase applications enabled by these technologies. This symposium brought together scientists and engineers from the US and Korea, promoting the opportunity for technical information exchange and research collaboration between these two vibrant communities. The EEC Symposium consisted of 3 EEC sessions with 18 oral presentations and 2 poster presentations.

KEY MESSAGES:
EEC sessions covered contemporary state-of-art technologies including IoT, smart sensing system, nanofabrication, nano-sensors and their integrations. Particularly, various energy technologies including blockchain for internet of things enabled power grid system, human machine interfaces, power conversion system, energy conversion system, and 3D electronic circuit systems were discussed. A note from KERI (Korea Electrotechnology Research Institute) emphasized the close technical collaborations between US and Korea to surpass the current technical barriers for commercialization.

CRITICAL CHALLENGES:
Four key areas were identified and discussed, including IoT, blockchain, energy and bio/medical applications. Those technical areas require further global collaboration and complimentary expertise that will bring synergic impacts to further advance aforementioned technologies.

FUTURE DIRECTIONS:
To deepen the topics, it might help to increase a number of sessions to have more discussions with diverse topics. In addition, to broaden audiences, it might need to include more diverse EEC topics and also invite more professionals.

MATH/APPLIED MATH/STATISTICS SYMPOSIUM

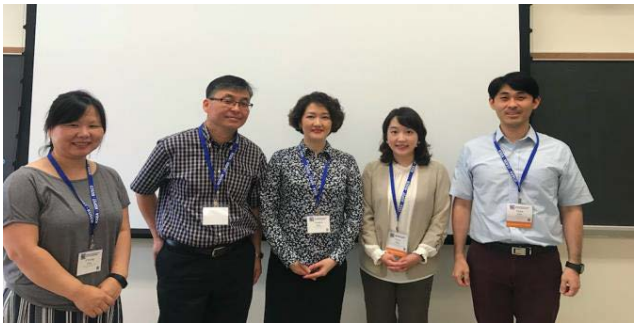
SOEUN KIM, PhD
Symposium Chair

Assistant Professor
University of Texas Health Science Center

YUNHO KIM, PhD
Symposium Co-Chair

Professor
UNIST

Math / Applied math / Statistics (MAS) Symposium brought together professionals in various fields related to mathematics, applied mathematics, and statistics. The symposium offered an opportunity to exchange new research ideas and to update each other in special topics that lead to advancement in each fields.. Academic, industry, and government leaders from both United States and Korea participated in sessions related to: math examples in real life, modern applied mathematics and statistics, bioscience and clinical trials, statistics in biomedical sciences.



KEY MESSAGES:
Key messages of topics covered in MAS symposium emphasized both pure mathematical aspects of research as well as practical extensions in fields such as imaging and clinical trials. Real world implications and examples were given and participants had an opportunity to discuss possible future direction and collaborations.

CRITICAL CHALLENGES:
One of the critical challenges in this field is in translating theoretical research in pure mathematics and statistics into real world examples. The MAS symposium made special effort to cover both theoretical and applied aspects of mathematics and statistics, and encouraged collaborative discussion during and in between sessions.

FUTURE DIRECTIONS:
Mathematics, applied mathematics, and statistics have significance in both theoretical research itself and also in potential for applications in solving real world problems. It will be increasingly important in the future to be able to extend the existing themes of research into contribution to interdisciplinary areas of research.

Biomedical Engineering Symposium

ICK CHAN KWON, PhD
Symposium Chair

Principal Researcher
KIST

JENNIFER SHIN, PhD
Symposium Co-Chair

Professor
KAIST

HO-WOOK JUN, PhD
Symposium Co-Chair

Associate Professor
University of Alabama

As in any other major industry, problem solving in modern medicine increasingly requires a true convergence of many scientific and engineering fields. While some of the last frontiers of biomedicine, such as neuroscience and regenerative medicine, critically demands new ideas and tools from other disciplines, paradigm-shifting technological innovations in information science, nanotechnology, and robotics could open new opportunities in healthcare. At the same time, a new generation of engineers, "fluent" in many different languages of science, are creating entirely new fields to view the old questions with a fresh look. In the **BME symposium**, we strive to provide a stimulating forum for all researchers willing to go beyond the "comfort zone" to explore new opportunities in biomedical engineering.

KEY MESSAGES:

We are proud to witness the great success of the 5th BME symposium at the annual UKC meeting. We had a fruitful and exciting forum where the leading Korean and Korean-American scientists and engineers in the field of biomedical engineering, biomedicine, and convergence technology were able to gather together to discuss exciting advancements and technological development. This networking opportunity among these leaders is likely to spur future collaborations that would benefit both Korean and Korean-American scientists. We are sure that it would contribute to a brighter future of Science and Technology in Korea with an enormous potential in not only improving human health but creating new industrial and economical opportunities. The Symposium covered topics on various convergent technologies to better understand and improve human health via different approaches in multi-disciplines including biomaterials & tissue engineering, mechanobiology & biotransport, neuro-engineering, exosome, Lab-on-chip & Organ-on-chip, and immunotherapies & drug delivery. BME and BMP also co-organize Celltrion Forum, KBIO Health and DGMIF Forum, and KHIDI Forum.

CRITICAL CHALLENGES:

Bringing back the leaders who attended this year's BME Symposium to our future meetings as well as recruiting additional new faces and rising future leaders in the vastly diverse areas of biomedical engineering would be crucial to ensure the continued success of the BME and the related field. A key to the success of this year's BME Symposium was that we were able to attract the top-class investigators who generated much excitement and motivations, which then led to spontaneous networking and collaboration opportunities. We must continue to work hard to recruit the symposium organizers who would be willing and able to attract leaders over different generations across the related fields. Additional financial support for the invited speakers would help the organizers recruiting new faces at both senior and junior levels.

FUTURE DIRECTIONS:

Based on the feedbacks from the first to third BME Symposium from 2014 to 2017, we have improved our symposium by expanding our collaboration with the BMP session by holding the BME/BMP Joint forum and joint networking dinner. In the future, we could consider collecting the contact information and brief research summary from attendees to create a database. These data base will be used to increase KSEA and KBMES membership and promote attend KBMES workshop and UKC. We will also explore more sponsors from bio, health, and pharmaceutic industries.

Bio, Medical and Pharmaceutical Symposium

YOUNG-SUP YOON, MD, PhD
Symposium Chair

Professor
Emory University

WOONGYANG PARK, MD, PhD
Symposium Co-Chair

Professor
Sunggyunkwan University

IN-HYUN PARK, PhD
Symposium Co-Chair

Associate Professor
Yale University

From the tradition biological or medical sciences have arisen the interdisciplinary biomedical sciences that combine multiple research disciplines to address the critical human health issues. The overarching goal of BMP symposium is to present the latest advances in biological, medical, and pharmaceutical sciences, to facilitate mutual understanding of these rapidly advancing fields, and to foster collaboration across the disciplines. BMP symposium traditionally encompassed a series of sessions for a variety of aspects of living organisms in health and disease, and molecular and cellular mechanisms underlying the normal and disease states. More specifically, we covered topics that have critical importance in human diseases, such as cardiovascular science, cancer, immunology, stem cell biology, and neuroscience. Additionally, we hosted multiple session for APC and Forum to facilitate the collaboration among different disciplines that include KASBP, KWISE, KWSE, KBIO forum, Celltrion forum, and KHIDI forum with the Biomedical Engineering (BME) Symposium. This BMP symposium must have been a great opportunity for a wide range of scientists, engineers, and physicians to learn from each other and to share ideas to facilitate their future research and collaboration.

KEY MESSAGES:

In cancer biology session, genomics and Bioinformatics session, the relationship of non-coding retrotransposon with cancer, crosstalk of DNA methylation and alternative splicing, precision medicine in cancer treatment, and deciphering the cancer heterogeneity were presented. In immunology session, cancer immunology, immune therapy for cancer treatment, autoimmune diseases and immune epigenetics were discussed. Stem cell biology session included multiple areas of stem cells from adult stem cells to embryonic stem cells, including basic stem cell features to application of stem cells for motor neuronal diseases and lung diseases. In vascular biology session, molecular signaling for vascular system development, lymphatic development, and function of ETV2 for vessel formation were presented. Cardiac session covered the transcription regulation of heart development, stem cell-based approach for cardiac repair, and bioengineering of cardiac biology. In neuroscience session, nicotine addiction pathway, human brain development, mitochondrial defect in neurodegeneration and human brain organoids were discussed. APS session and forums covered multiple disciplinary research and commercialization of biomedical findings.

CRITICAL CHALLENGES:

In BMP Symposium, most forefront research findings and future directions in the given areas were presented and discussed. As we have planned for the symposium, we tried to cover a variety of biomedical topics as possible. In one aspect, the efforts were successful in having a number of experts in several biological fields. Additionally, including APS and BMP/BME joint forums provided a platform to share the common interest among experts in different fields. However, having too many sessions did not allow participants to attend the parallel sessions, missing a great opportunities to participate in most sessions and learning from the experts. In organizing the future BMP symposium, we will attract the leading experts in the field, but also reduce the number and/or organize the sessions in such a manner that participants do not lose the opportunity to attend a major of sessions.

FUTURE DIRECTIONS:
As for the topics for future BMP symposium, we will incorporate most rapidly advancing areas in biomedical science, such as therapeutics based on CRIPSR/CAS9 technology and immune therapeutics. We will invite experts in these areas to hear the trends in these fields and challenges. In basic biology, epitranscriptome as well as single cell based technologies have become matured and applicable to traditional biomedical fields. Inclusion of these topics in sessions will disseminate the knowledge critical to improve the innovative aspects of participants.

KASBP Group Photo

Stem Cell Group Photo

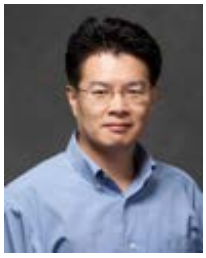
BME/BMP Joint Celltrion Forum: From Hematological Malignancies to Cancer–free

BME/BMP Networking Dinner

Chemical Engineering Symposium

SU HA, PhD
Symposium Chair

Professor
Washington State University



HYUNMIN YI, PhD
Symposium Co-Chair

Associate Professor
Tufts University

JAE WOO LEE, PhD
Symposium Co-Chair

Professor
KAIST

The Chemical Engineering Symposium was designed to provide a forum for leading experts and young researchers to present and discuss recent advances in Chemical Engineering and closely related fields. Topics included energy technology, nanobiotechnology, advanced polymeric and nanomaterials, computational methods in materials synthesis and process modeling. In this year, we have integrated the SK Forum with our Chemical Engineering Symposium in order to openly discuss both future energy challenges and key future technology developments needed to address them.

KEY MESSAGES:
The CHE symposium covered latest advances in a wide range of important areas including but not limited to novel functional materials and catalysts, synthetic biology, and advanced modeling and computations for addressing our energy and environmental issues. Similar number of junior and senior participants from U.S. and Korea further facilitated high quality and solid discussions. The SK Forum and CHE symposium were integrated by inviting the participants who can contribute in both events. Since the interest of SK for the future R&D areas and expertise of our speakers from the CHE symposium share many common grounds, the participants from both venues were indistinguishable and showed equivalent involvement and enthusiasm.

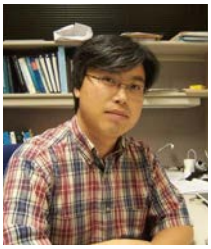
CRITICAL CHALLENGES:
Despite the success of integration between the SK Forum and CHE symposium, a limited opportunity was presented for in-depth discussions on new and potential collaborations due to the tight schedule.

FUTURE DIRECTIONS:
In the future UKC conferences, we plan to expand our present success with the SK Forum and coordinate more integrated venues between the CHE symposium and the company sponsored forums. Additionally, we plan to re-continue joint sessions with other symposia (e.g. Chemistry) in order to promote interdisciplinary research discussions. It would also be very beneficial to increase the number of sessions to cover more topic areas so that more speakers can participate. Importantly, more networking and discussion opportunities in small group settings will be pursued to further enhance the quality and outcome of the symposium in future UKC meetings.

Chemistry Symposium

JONG-IN HAHM, PhD
Symposium Chair

Associate Professor
Georgetown University



DONG-HEE SON, PhD
Symposium Co-Chair

Associate Professor
Texas A&M University

SUNGJEE KIM, PhD
Symposium Co-Chair

Associate Professor
POSTECH

Chemistry is crucial to the understanding of the behavior of materials on the atomic and molecular level. It is also of paramount importance for the advancement of modern technology through its application. Much of recent advances in chemistry were made at the interface of chemistry, physics, biology and engineering. Interdisciplinary research is becoming increasingly more important in solving important and complex problems.

KEY MESSAGES:
The Chemistry symposium covered broad issues in chemistry and pertinent research topics from its related disciplines by hosting highly interdisciplinary technical sessions during UKC 2018. Presentations from the experts from US and Korea discussed a range of important research topics as summarized above, highlighting recent advances in the experimental, theoretical and computational fields and their applications in medicine, energy and new functional materials. Importance of developing new experimental and computational approaches that are environmentally more sustainable and more economical has also been noted.

FUTURE DIRECTIONS:
Continued effort in understanding the atomic and molecular origin and obtaining the nano-/micro-scopic picture of new phenomena, and the development of new tools for probing the structure and dynamics observed in the natural system and newly developed materials will be important to translate basic science of Chemistry into useful technology.

The Chemistry symposium has been successful for multiple years now in effectively addressing the aforementioned critical challenges. The Technical Group B (TGB) has been successful in hosting the Chemistry symposium both independently for some years and jointly with other technical groups for other years. The TGB leadership and organizing team of Chemistry will continue to make such efforts in the coming years for the continued success of the Chemistry symposium at UKC, fostering scientific interactions and exchanges between different research communities having common scientific interests.

Food, Agriculture and Nutrition Symposium

SUNG WOO KIM, PhD
Symposium Chair

Professor
North Carolina State University

HONGSIK HWANG, PhD
Symposium Co-Chair

Research Chemist
USDA-ARS

KWANG-GEUN LEE, PhD
Symposium Co-Chair

Professor
Dongguk University

The FAN Symposium offers professionals in the Food, Agriculture, and Nutrition fields a multidisciplinary platform to learn about the latest scientific advances from academic, government, and industrial leaders. The symposium covers all areas of foods, agricultural products, and nutrition. Specifically, the symposium focuses on: (1) scientific information on food science including functional food, food processing, food quality, safety and regulation, food nanotechnology, and other emerging food technologies; (2) scientific information and development in agriculture including animal science, crop science, plant science, and other agricultural areas; and (3) advances in nutrition, mechanistic understanding of nutrient actions on human health, and prevention and treatment of various disease conditions including obesity, diabetes, cancer, stroke, and many other disorders using nutritional approaches. The symposium is a great opportunity to communicate latest advances in science and technology as well as public health policies involving food, agriculture and nutrition, and stimulate collaboration between participants from US and Korea in this subject area.

KEY MESSAGES:

Since FAN symposium covers a broad range of multidisciplinary areas (food, agriculture, and nutrition), the FAN program committee developed the program to balance among three main disciplinary areas and also interdisciplinary sessions. In this UKC 2018, FAN could host 2 food sessions, 2 agriculture sessions, and 2 nutrition sessions. Two of these sessions were also jointly hosted by APS (KAFTA and KWiSE). FAN also hosted the 4th CJ Forum sponsored by CJ Cheiljedang (CJ). Key executive board members (CEO, VPs, Directors) from CJ attended the CJ Forum which also included CJBP Grant Program, Interviews, and Open Forum. The FAN hosted Networking dinner on Thursday immediately after CJ Forum.

FUTURE DIRECTIONS:

The FAN program committee will continue the tradition of balancing three key areas (Food, Agriculture, and Nutrition) with an emphasis of interdisciplinary collaboration. The FAN program committee will also keep a close relationship with CJ for the continuation of CJ Forum, Interview, and CJBP Grant Program.

Civil, Environmental and Architecture Symposium

BOO-HYUN NAM, PhD
Symposium Chair

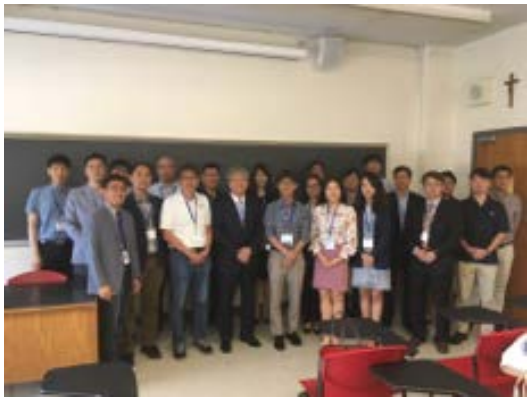
Associate Professor
University of Central Florid

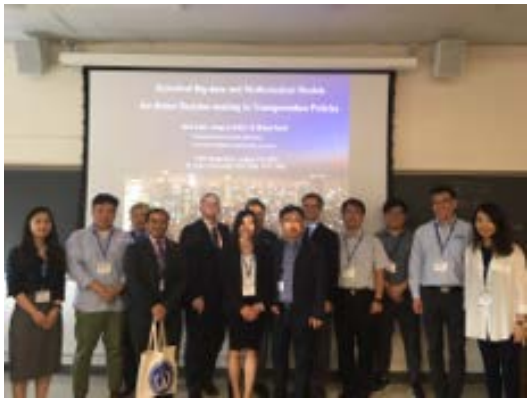
KITAE PARK, PhD
Symposium Co-Chair

Researcher
KICT

Along with the APSs, the CEA-KSCEE(Korean-American Society of Civil and Environmental Engineers)-KOTAA(Korean Transportation Association in America) joint symposium brought together world leading engineers, educators, and professionals in various fields of civil, environmental, and architectural engineering from across the US and Korea. The CEA-KSCEE-KOTAA joint symposium aimed at highlighting big data, autonomous systems, robotics, infrastructure advancement, and environmental biotechnology in the fields of civil, environmental, and architectural engineering. The CEA served total 8 regular sessions (total 62 presentations), a forum (Seoul Metro and a poster session where total 25 posters were presented. In each session, one talk was invited from eminent scholars and/or government agency officials. KSCEE took a led on three technical sessions collaborating with architecture, construction, and water groups. KOTAA was in charge of on one session collaborating with transportation group focusing on autonomous system. CEA TG led three sessions collaborating with infrastructure and environmental groups focusing on infrastructure advancement, biotechnology, big data, robotics, etc. All CEA sessions served as timely events for the enrichment of research collaboration and networking between US and Korea.

KEY MESSAGES:
We could engage more professionals and scholars from multiple disciplines and strengthen academic collaboration and professional networking. The CEA symposium disseminated cutting-edge knowledge-technology and also present research/professional role models to younger engineers/scientists. The CEA symposium covered topics on state-of-the-art and state-of-the-practice solutions and future directions/trends in the areas of infrastructures, materials, geotech, construction, water resources, environments, and building and energy. In particular, the KICT-KSCEE session addressed how civil engineering technologies can be used to solve contemporary problems in civil engineering.





CRITICAL CHALLENGES:
There is a strong need to integrate basic science, fundamentals, and state-of-the-art research findings into real-life engineering problems with practical solutions. A closer collaboration between different fields is a key toward more sustainable CEA systems that are more durable, smarter, performing well, efficient, and longer-lasting. It is also necessary for government to help define and implement long-term vision and preserve continuity of the vision as an institutional partner for global issues.

FUTURE DIRECTIONS:
It is important to understand how fundamentals can be used for engineering aspects and how engineering solutions can shape the entire community and public policy. Therefore, civil engineers are required to serve more leadership positions. This requires close collaborative efforts between areas and fields. Future civil engineering will be more comprehensive than today by achieving active engagement on a variety of environmental and infrastructure fronts.

Mechanical, Aerospace and Naval Engineering Symposium

EON SOO LEE, PhD
Symposium Chair

Assistant Professor
New Jersey Institute of Technology

KEUNHAN PARK, PhD
Symposium Co-Chair

Assistant Professor
University of Utah

MYUNG YUNG JEONG, PhD
Symposium Co-Chair

Professor
Pusan National University

The Mechanical, Aerospace, and Naval Engineering (MAN) Symposium covered a wide range of areas including mechanics, materials, controls, manufacturing, and biomedical and energy transport. The MAN symposium was composed of Additive Manufacturing and Smart/3D Manufacturing, Nano-Bio Engineering, Robotics and Control, and Thermal/Fluid Engineering sessions. In particular, this symposium was very successful in joining in the sessions for Additive/Smart/3D Manufacturing and Nano-Bio Engineering. The symposium provided the opportunity to discuss the latest cutting-edge researches in mechanical, aerospace, and naval engineering with the researchers from across the U.S. and Korea. The MAN Symposium was composed of 25 oral presentations and many of the oral talks were invited for the session topics as Invited, Keynote, and Plenary for the symposium. 4 posters were presented in the symposium.

KEY MESSAGES:

- Overall, Smart manufacturing, NanoBio Engineering and Soft Robotics are the emerging research area in the field, and they are all cross-linked and can enhance the research capabilities from the synergistic activities.
- Additive Manufacturing covered diverse topics in polymer, ceramic, metal AM and 4D printing, and various applications were introduced (e.g. electrical/electronics, sports, biomedical engineering and micro/nano areas.)
- Addictive manufacturing with both soft and metal materials using a 3D printer seems popular and gained a lot of attentions.
- NanoBio Engineering has become popular in many research areas, not only in bio engineering but also in general engineering, even in to the ability to build nanorobots.
- Biomechanical consideration of foot design can enhance the walking performance of the powered transfemoral prosthesis.
- Soft robotics are emerging and appropriate control methods need to be developed to involve human interaction, including augmentation and rehabilitation of the mobility of the stroke patients.
- MAN provided the interdisciplinary symposium to discuss the most recent innovations and concerns, practical challenges encountered in the research area.

CRITICAL CHALLENGES:

- Multidisplinary research is the recent trends in many research areas including MAN, and organizing and arranging such interdisplinary session is challenging, even in sessions in the Symposium.
- 3D printing and smart manufacturing are popular to both researchers and young students, but inviting more diverse topics would be a challenge.
- Program book update is challenging for the last-minute change, such as the new inclusion/cancellation of the talks or change of the talks to other session, etc.
- The following challenges are very difficult for program chair/co-chairs effectively to manage the program and the sessions,
  - No show
  - Last minute cancellation
  - Late appearance
- The time for each oral presentation around 20 to 30 min. was challenging to get an enough time to ask/answer the questions.
- Facilities:
  - A session room was much crowded due to the small room size.

- A session room has only one entering door in the front (not the back side), so it's so bothering presentations when attendants are coming in and going out.
- Lodging quality in the dorm was not satisfactory.
- Locating the registration site, presenting room and lodging site is challenging to new comers, particularly under a limited time condition. (Big building like a hotel with everything in one place is preferred by many participants.)

FUTURE DIRECTIONS:

- More interdisciplinary and multidisciplinary efforts to tackle complex problems.
- More communications and network development with collaborative works
- More affordable facilities and rooms to be arranged in the next.
- More diverse topics to be invited to satisfy the needs of the participants, particularly in nano/bio engineering, robotics and smart manufacturing
- Smart health also covering robotics, controls, smart manufacturing in addition to the nano/bio engineering.

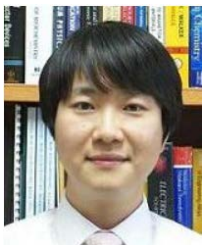
Material Science and Engineering Symposium

JEONG-HYUN CHO, PhD
Symposium Chair

Assistant Professor
University of Minnesota

CHANG-YONG NAM, PhD
Symposium Co-Chair

Staff Scientist
Brookhaven National Lab.



JANG-SIK LEE, PhD
Symposium Co-Chair

Professor
POSTECH

The symposium of Materials Science and Engineering (MSE) focused on the advances in multidisciplinary research areas in multidimensional materials and devices including nanostructured materials, biomaterials, energy materials, and functionalized materials. The MSE symposium also offered collaborative sessions with the Korean-American Materials Society (KAMS), dedicated to the recent progress in novel material design/ characterization for neuromorphic computing. The MSE symposium held 6 sections and had 28 speakers and 4 poster presenters who presented their research and recent progress during three days. The presenters and participants shared their multi-faceted problems and solutions that must be approached by highly interdisciplinary research expertise and ideas. They also networked to get opportunities for nurturing synergistic future collaborations.

KEY MESSAGES:
The MSE symposium especially encompassed diverse novel synthesis processes for the realization of next generation functionalized, bio-, magnetic tunnel junction-, energy storage-, anticorrosion-, energy conversion-, chiromagnetic- and ferroelectric/dielectric-materials. The symposium highlighted that functionalized materials provide unique physical and chemical properties that can be utilized for distinct applications in the areas of engineering and science. Particularly, it was heavily discussed how low-dimensional materials can be further functionalized by realizing multidimensional configurations, transforming 1D or 2D materials into 3D micro- and nanostructures using self-assembly processes and 3D printing.

CRITICAL CHALLENGES:
Some of the critical challenges is how to deal with global issues related to MSE, for example, global warming, depletion of raw materials/resources, high energy consumption, etc. Challenges facing global issues are to develop energy-efficient electronic devices, better energy conversion/storage devices, and multi-functional novel devices based on discipline of MSE. MSE is identified uniquely to address all these challenges. Further collaboration among other societies and disciplines is essential to understand/define critical challenges and to facilitate finding solutions for global issues better. Additionally, it will be very important to collaborate between the US and Korea from the highest level of government so that scientists and engineers can easily communicate/collaborate within the boundary of government regulations and compliances.

FUTURE DIRECTIONS:
The participants of the Symposium recognized that the key breakthroughs in material research would be realized through collaborative efforts encompassing all necessary aspects of fundamental materials science as well as the ultimate, practical system integration that dictates the required material characteristics and specifications. We suggest that the timely communication between scientists working on basic materials research and those who are advancing technologies is critical, and the role of suitable research forums, such as UKC, where the lively exchange of information and ideas can occur, is becoming increasingly important. We Korean and Korean-American scientists have a lot to contribute to the advances of science and technology by working together, and we recommend consorted future efforts for creating strong networks of Korean and Korean-American scientists and researchers not only through UKC Symposiums but also by organizing research symposiums in other related, prominent professional research societies such as Materials Research Society (MRS).

Physics Symposium

CHUENG-RYONG JI, PhD
Symposium Chair

Professor
North Carolina State University

BUM-HOON LEE, PhD
Symposium Co-Chair

Professor
Sogang University

KYUNGSEON JOO, PhD
Symposium Co-Chair

Professor
University of Connecticut

The Physics Symposium brought together world leading scientists and young researchers in various fields of Physics from across the U.S. and Korea. Fundamental, applied and emergent physics along with Informatics and Autonomous systems were organized and the link with other interdisciplinary areas was discussed. This meeting served as a timely event to discuss the enrichments of research collaboration and networking between US and Korea. In particular, the progress of the Institute for Basic Science (IBS) and the associated Rare Isotope Science Project (RISP) as part of the International Science & Business Belt (ISBB) in Korea appears in close connection with the Facility of Rare Isotope Beam (FRIB) and the Electron Ion Collider (EIC) project in US. The Physics Symposium consisted of 2 special joint sessions with the Association of Korean Physicists in America (AKPA) as well as 4 invited sessions with 18 oral presentations. One Physics Poster award was made among the Poster Session presentations.

KEY MESSAGES:

The Physics Symposium brought together world leading scientists and young researchers in various fields of Physics from across the U.S. and Korea. Fundamental, applied and emergent physics along with Informatics and Autonomous systems were presented and the link with other interdisciplinary areas was discussed. Networks and Data Science provided creative new avenues of applying the physics first principles and relate various emerging interdisciplinary research areas with the typical physics topics such as High-Energy Physics, Nuclear Physics, Cosmology, Astrophysics, Biophysics, Optics, Plasma Physics and Condensed Matter Physics. The technology development in the measurement of physical phenomena has also been tremendous. Effectively, this symposium provided a showcase of significant progress on fundamental understanding of the basic physics principles on a par with the technology development. Joint special sessions with AKPA were particularly useful in providing timely networking opportunities to discuss the enhancement of support plans for young researchers.

CRITICAL CHALLENGES:

While the technical progress of instrumentation is critical in many branches of physics, focusing too much just on instrumentation could be double edged. One may easily forget the fundamental physics that was originally aimed at, when the researchers are indulged in the instrumentation itself too much. It is also necessary to understand clearly the similarity and the difference between the fundamental physics and the emergent physics.

FUTURE DIRECTIONS:

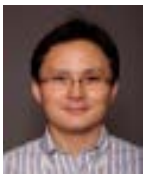
More networking opportunities among the experts in the fundamental physics, the applied physics, the emergent physics and the Networks and Data Science will be desirable to enhance the more active discussion on solving the challenging questions addressed at the turn of the century. Interface between the theory and the experiment is particularly crucial for the physical understanding to answer the challenging science questions.

Celltrion	August 2, Thursday, 1:30 - 3:30 pm @ D'Angelo 416A August 3, Friday, 1:30 - 3:30 pm @ D'Angelo 416A
CJ (CheilJedang)	August 2, Thursday, 1:30 - 6:00 pm @ D'Angelo 416B
IBS (Institue for Basic Science)	August 3, Friday, 4:00 - 6:00 pm @ D'Angelo 416A
KBIO Health / DGMIF (Osong and-Daegu-Gyeongbuk Medical Innovation Foundations)	August 2, Thursday, 4:00 - 6:00 pm @ D'Angelo 416A
KEIT (Korea Evaluation Institute of Industrial Technology)	August 3, Friday, 11:45 - 6:00 pm @ D'Angelo 416C
KHIDI (Korea Health Industry Development Institute)	August 3, Friday, 4:00 - 6:00 pm @ D'Angelo 416B
KIAT (Korea Institute for Advancement of Technology)	August 2, Thursday, 3:30 - 6:00 pm @ D'Angelo 401
LG Electronics	August 2, Thursday, 1:30 - 6:00 pm @ D'Angelo 416C
Seoul City (SBA)	August 3, Friday, 1:30 - 3:30 pm @ D'Angelo 416B
Science Diplomacy	August 2, Thursday, 1:30 - 3:30 pm @ D'Angelo 311
SK innovation	August 3, Friday, 4:00 - 6:00 pm @ D'Angelo 416C
University Leadership Forum	August 3, Friday, 1:30 - 3:30 pm @ D'Angelo 401
KWISE-KOFWST (Korean American Women in Science and Engineering/Korea Federation of Women's Science & Technology Associations)	August 3, Friday, 1:30 - 6:00 pm @ Marillac Hall 219
YG/PF (Young Generation or Professional Forum)	August 2 - August 4 @ Bent Hall

CELLTRION FORUM

CELLTRION

Chair: Yoon Park
Korea Institute of Science and Techonology



Chair: Min–Kyu Cho
Novartis

Celltrion supported this forum. This forum is formed with studies conducted in the academic world (Day 1) and industry (Day 2) focusing on hematological malignancies, an indication of Rituximab, one of the commercial products of the Celltrion.
In day 1, Co-chairs, Yoon Park and Min-Kyu Cho, made welcoming remarks and introduced Celltrion's history and vision. Min-soo Kim (University of Rochester Medical Center) introduced the lasts findings that control the CAR-T cell using optics. Joshua Brody (Mount Sinai Hospital) emphasized the importance of vaccines in lymphoma treatment in future. James Moon (University of Michigan) introduced nanomaterial for enhancing vaccine effect.

In day 2, it began with a welcome from Co-chairs. Yoon Park (KIST), who worked for Pfizer and BMS for many years, introduced the Ex-vivo Human Model system that can study IO combination. Jin Hwan Han (Merck) gave a detailed account of the history and status of the development of PD-1 antibody treatments. Finally, John Lin (Regeneron) presented impressive animal experiments and clinical results from CD20 x anti-CD3 Bispecific monoclonal antibody under clinical development. The two-day symposiums allowed us to take meaningful time to understand the current trends in research to treat hematological malignancies.

FORUM ASSOCIATED ACTIVITIES
A. BME/BMP Joint Networking Dinner (as reported by Prof Ho Wook Jun)
We had a BME/BMP joint networking dinner at D'Angelo Center sponsored partially by KSEA, Celltrion, KIST. We had about 80 participants (faculty, guests, trainees, R&D investigators and regulators, government officials) at the Dinner.

CJ (CheilJedang)

Chair: Sung Woo Kim
(North Carolina State University)

Chair: Young Soo Shin
(CJ Cheiljedang)

This was the fourth CJ Forum hosted during UKC since 2015. This year CJ Forum included presentation competition for CJ Blossom Park Grant (CJBP Grant). Three teams were selected and invited to present the proposal for the decision of final recipients. A subsequent open session included introduction of CJ Blossom Park Research and Development with discussion and questions among participants from FAN Symposium.

KEY MESSAGES:
This was the fourth attempt of CJ Forum since UKC 2015. FAN was the key participants to CJ Forum. The second CJ Blossom Park Research Funding Request was well participated with many proposals from bioscience, material science, food, and agriculture areas. Three proposals were selected, invited for final competition, and presented to the top management (CEO, VP, and Executives). CJ had a separate interview session with 8 candidates.

CRITICAL CHALLENGES:
No major critical challenges. One minor challenge was the location of interviews. There were no dedicated rooms for the interview but ballrooms were provided while the band practice was occurring.

FUTURE DIRECTIONS:
CJ Forum could be continued for UKC 2019 but the planning should be arranged in advance (during 2018). CJ Blossom Park RFP could also be continued which will bring benefits to KSEA members.

IBS (Institute for Basic Science)

IBS GLOBAL TALENT FORUM

With the vision of "Making Discoveries for Society and Humanity", the Institute for Basic Science (IBS) pursues excellence in basic Science research. The goal of IBS is to advance the frontiers of knowledge and to train the leading scientists of tomorrow.

IBS Global Talent Forum aims to introduce the Institute for Basic Science (IBS) and IBS Young Scientist Fellowship (YSF) Program, and share ideas on the research conducted by IBS young scientists.

We hope that the forum brings the researchers from Korea and U.S. to share their ideas and passion, and to play an active role in fostering next generation basic science leaders. Anyone who is interested in seeking employment at IBS is welcome to attend.

Chair: JUNG Yookyung
(YSF, IBS Center for Molecular Spectroscopy and Dynamics)

Chair: YOO Jejoong
(YSF, IBS Center for Self-assembly and Complexity)

Time	Title and Speaker
4:00 PM	**Welcome remarks from IBS President** Dr. KIM Doochul (IBS President)
4:05 PM	**Introduction of IBS and IBS YSF Program** Mr. PARK Gihoon (Head of Global Relations Team, IB**S)**
4:15 PM	**Label-free and deep tissue optical microscopy** Dr. JUNG Yookyung (YSF, IBS Center for Molecular Spectroscopy and Dynamics)
4:25 PM	**Assembling a team of computational self-assembly at IBS** Dr. YOO Jejoong (YSF, IBS Center for Self-assembly and Complexity)
4:35 PM	**Q&A / Discussion**
5:25 PM	**Wrap-up**

KBIO HEALTH and DGMIF (Osong and Daegu-Gyeongbuk Medical Innovation Foundation)

Chair: Hanjoong Jo
Emory University & Georgia Tech

Osong Medical Innovation Foundation (KBIO Health) and Daegu-Gyeongbuk Medical Innovation Foundation (DGMIF) jointly supported this forum. In this forum, the representatives of KBIO Health and DGMIF introduced their institutions to highlight their visions, capabilities, strategies, and how aim to achieve their goals to provide comprehensive R&BD support for Medical Innovation in Korea. Through the Forum, KBIO and DGMIF sought global collaborations and joint projects with US investigators in academia and industries in the area of New Drug Development, Medical Device Development, Preclinical Testing, and Drug Manufacturing.

Director Kyu Ho Song at DGMIF and Director Myung Jung Kim at KBIO made welcoming remarks and introduced the overall vision of DGMIF. Three other leaders of DGMIF, Drs. Sung Woo Lee, Jae Bum Son, and Woo Suk Ko introduced the overall activities and directions of their Drug development, Medical device development and Experimental animal center at DGMIF. These leaders especially emphasized their desire to establish collaborations with Korean-American investigators.

Drs. Dae Young Kim and Jin-Hee Moon presented the activities and directions of KBIO Health in the areas of Drug development and Medical device development as well as some recent success stories.

KEY MESSAGES:
This was the first time that KBIO Health and DGMIF Forum organized the joint Forum. This year's main goals were to introduce the new leadership teams and to look for ways to establish global collaborations with Korean-American investigators. To help the goals of KBIO and DGMIF, additional arrangements were made between DGMIF and Emory University and Georgia Tech.

Immediately following the UKC Meeting in New York, the five-member delegates from DGMIF led by the Director Kyu Ho Song also visited Atlanta to meet with Korean-American professors at Emory University and Georgia Institute of Technology. On Aug. 6th Monday, the DGMIF team met with 10 Korean Professors at Emory and Georgia Tech as well as the Department Chair of the Biomedical Engineering Department, Dr. Susan Margulies at GA Tech and Emory University. Following the all day meeting, a dinner meeting was arranged. There has been additional follow up correspondences between the DGMIF leaders and Prof. Hanjoong Jo at Emory. It is hoped that this type of activities could lead to tangible outcomes that could benefit all those involved in Korea and USA.

CRITICAL CHALLENGES:
The number of audiences in this Forum was 15-20 including the speakers in the Forum. The Forum was scheduled with other related sessions, which seemed to compete for the same pool of potential attendants. Due to the leadership changes both at KBIO and DGMIF, it was difficult to plan the Forum from early planning phase of the UKC meeting to minimize the overlap with other sessions with similar topics. Planning the Forum that can meet the needs of the Sponsors on topics and issues of great interests to many attendants is critical. Additional financial support for the highly qualified invited speakers both at the senior and junior levels would help the organizers recruiting.

FUTURE DIRECTIONS:
The Forum was difficult to plan until the Sponsors committed the funding, which was very late. This is a key issue that needs to be addressed. The Forum topic, format, and key participants should be discussed and coordinated with other symposiums, especially BME and BME, to minimize having multiple concurrent sessions. If possible, Forums should not be scheduled with other Symposium sessions with related topic. Increased funding for invited speakers and networking dinner should be considered.

KEIT (Korea Evaluation Institute of Industrial Technology)

Korea Evaluation Institute of Industrial Technology (hereafter as 'KEIT') plays a role in planning, assessing and managing national industrial R&D programs under the Ministry of Trade, Industry and Energy (hereafter as 'MOTIE'). Since 2014, KEIT along with MOTIE has organized the KEIT Research Strategy Forum (KEIT Forum) and promoted the participation of Korean-American scientists and engineers in planning of Korea national R&D projects to improve that productivity and Global Cooperation in its R&D programs. This year's KEIT Forum topics included presentation of MOTIE's R&D roadmap and KEIT's policies and programs for promoting the emerging industries, with focus on six industrial technology areas: Medical Device, Biomedical, Nano Convergence, Smart Electronics, IT Fusion Convergence/Automobile.

Chair: Jun-Seok Oh (Western Michigan University)
Co-Chair: Byoung Jai Kim (KEIT)

Speakers:

Bio & Health	**Jong Yun Park**, Professor, Moffitt Cancer Center *Trend of Precision Medicine through Cancer Genomic Analysis*
IoT	**Myung Jong Lee**, Professor, City College of New York *Internet of Thing (IoT) Prospective*
Energy	**Sunkyu Park**, Professor, North Carolina State University *US Renewable Energy Overview and Bioenergy R&D Trend*

KHIDI (Korea Health Industry Development Institute)

This was the third annual Forum supported by KHIDI. A major goal of this Forum was to bring together academics, research institutes, and health care leaders in Korea and USA to highlight R&D efforts in AI (Artificial Intelligence)-based approaches for drug development, cancer research and diagnosis, and robotic device development for paraplegic patients. This Forum discussed future directions and strategies for AI-based approaches in medicine and health care suitable for Korea.

Chair: Hanjoong Jo
Emory University & Georgia Tech

Co–Chair: Chulhwee Joo
Sejong University

Following the welcoming speech by Dr. Jae Ran Lee, General Director of KHIDI, four invited leading investigators in academics and industry presented the exciting development, trends, and directions how AI can be applied in various ways currently and in near future of biomedine. Using AI-based approaches to develop new drugs, better cancer diagnosis and disease mechanisms, and brain mapping and device development for paraplegic patients were discussed in this Forum. Dr. Tyson Kim at Syntekabio discussed the current status of AI Drug development In The Era of Precision Medicine in Korea. Dr.Chulhwee Joo at SeJong Univesity then discuss the paradigm change in new drug discovery effort using AI-based approroaches. Next, Prof. May Wang from Georgia Tech presented how AI is used in various biomedical sciences. Prof. Chethan Pandarinath from Emory University presented how AI is used in Brain-Machine Interface studies in an effort to develop neural prosthetic device for paraplegic patients.

KEY MESSAGES:
The topic of the Forum on AI in biomedicine is timely and exciting and the speakers presented exciting work. It is a topic that is likely to continue to be exciting and worthwhile to focus on in the future as well.

CRITICAL CHALLENGES:
The number of audiences in this Forum was 15-20 at the beginning, but dwindled to less than 10 including the speakers in the Forum. Major problems seem to be the timing. It was scheduled at the time overlapping with the cruise dinner as well as other concurrent sessions of BME and BMP with overlapping topics. Because the Forum sponsor committed only at the last minute, this Forum had to be scheduled in that time slot. This should be avoided in the future.

FUTURE DIRECTIONS:
The Director of KHIDI, Dr. Jae Ran Lee invited ten leaders of BMP and BME Symposium for a working lunch before the Forum. This lunch was really effective where we discussed how KHIDI and Korean investigators in US could work together and collaborate for mutual benefits. How can Korean investigators in US could be more helpful for KHIDI's goals? What could KHIDI do or change to attract more active and meaningful participation of Korean investigators in US in KHIDI-supported projects and activities? There were many interesting ideas that came out of this lunch. It would be great if KHIDI could share their thoughts.

LG ELECTRONICS FORUM

ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS AND FUTURE

Chair: Kyeong Ho Yang
(Dialogic, KITEE)

Co–Chair: Sungjin James Kim
(LG Electronics)

This forum consisted of two sessions for a total of four and half hours, and attracted more than 40 attendees including many who enjoyed the presentations and actively participated in the interactive Q&A sessions and panel discussions, staying for the entire forum.

Presenters, (from the right) Dr. Hyuckchul Jung, Dr. Seongik Hong, Dr. Sungjin James Kim, Dr. Bongjun Ko, and Dr. Kyeong Ho Yang (Chair and Moderator).

Photo of attendees taken during the intermission of the forum

The first session (presentation session) included four presentations. It touched core technologies and trends of AI and discussed its broad applications in various sectors, especially focusing on a few actual solutions that are transforming business productivity and quality of products and services.

In the first presentation titled, **Artificial Intelligence at LG Electronics, Dr. Sungjin Kim of LG Electronics** (Senior Research Fellow) briefly reviewed AI and its core technologies, machine learning and deep learning, and then shared with the audience his professional view of current AI and its future especially in the industry, explaining its wide applications and potential in voice agents, predictive analytics, autonomous driving & cabin monitoring, robotics, neural chip, biometric intelligence, and product intelligence. He also introduced several LG products that already employed AI technologies. The presentation was a very informative lecture.

In the next presentation titled, **Cloud AI/ML Services, Dr. Seongik Hong of Amazon Web Services** (Cloud Infrastructure Architect) introduced the Machine Learning as a Service

(MLaaS) that offers machine learning tools as part of cloud computing services, including face recognition, natural language processing, predictive analytics, and deep learning. He then explained how the cloud service can make data analysis and engineering more effective. Dr. Hong also compared popular MLaaS services that are currently available for data scientists including those from Amazon, Microsoft, Google, and IBM.

In the presentation titled, **Natural Language Processing in AI-enabled Business Applications, Dr. Hyuckchul Jung of Morgan Stanley** (Vice President) reviewed a few AI-enabled customer care applications for natural language processing, explained technologies that are becoming more sophisticated, and discussed challenges the businesses are facing in AI-enabled services development especially in the financial sector.

In the last presentation titled, **AI-enabled IoT Applications, Dr. Bongjun Ko of IBM T. J. Watson Research Center** (Research Manager) identified enablers of AI and explained how AI could significantly improve the quality of IoT applications showing a few examples of applying AI to IoT data such as sound analytics, IoT network data analytics, moving objects trajectory analysis, and presence information.

After a short intermission, we had a **panel session** inviting the four presenters as panelists and tried to identify promising application areas of AI and challenges & solutions, and understand its impact on entrepreneurship and startup opportunities that would disrupt the current industries. The panel discussion was very active partly because most attendees were experts in their respective fields who already applied the concept of data mining, machine learning, and/or AI to their applications at different levels. Some raised issues and challenges of applying AI to their applications, especially in organizing and connecting data. The panelists also discussed the current race of leading IT companies to acquire promising AI startups that is heating up.

KEY MESSAGES:
The forum agreed that AI already proved its value and potential capability and started delivering significant ROI for business, becoming a must in every IT strategy in business. However, it is still in its early stage and requires continuous investments and efforts in development of AI algorithms and data collection & management for its robust and reliable application. Collaboration between AI technologists and domain experts is also suggested to provide more insights into the respective field.

CRITICAL CHALLENGES:
The panelists raised a few challenges we're facing in applying AI in businesses. The first one is lack of big processable data. While a huge amount of data are generated every second, most data are not connected and it is very difficult to curate the data for training machine learning models. In addition, they are typically not easily recognizable by human and preparation of data for training still relies on domain experts. Another challenge is the limited accessibility of big data for small companies. Privacy, security, and regulatory constraints of data are also discussed.

FUTURE DIRECTIONS:
Artificial intelligence is still in its early stage and requires continuous collaborative efforts in various technical and business areas for wide acceptance. We understand that AI is very broad in both technology components and applications and we were able to cover only a slice of the AI in this forum. We hope to hold the AI forum at every UKC in the next few years.

SEOUL CITY FORUM

Chair: Soolyeon Cho
North Carolina State University

The Seoul City Forum was the 4th event at the annual US-Korea Conference (UKC). The Seoul Business Agency (SBA) has actively supported the KSEA's UKC conference since 2015. We have successfully held the forums inviting experts in various disciplines, especially the ones closely related to the issues and technologies that cities always deal with. This year's topic was on how to solve problems in cities through research and development of science and technology. Five experts have been invited from national labs and universities as panel members and speakers. They have come from institutions both South Korea and the US. Their expertise was on roads, bridges, subways, transportation, construction, infrastructure, recovery, resiliency, buildings, and smart city.

KEY MESSAGES:
The forum started with ten-minute presentations by five invited panels, after which an open discussion followed with the invited guests and attendees. The panel members brought examples of common problems and issues that happen frequently in cities. Solutions and technologies for the problems were also introduced. Presented were the state-of-the-art and future development of science and technologies for the development of more sustainable cities.

CRITICAL CHALLENGES:
Like human bodies, the urban infrastructures require constant inspections and maintenance. Specialized maintenance and rehabilitation management for aged facilities are critical. Minimizing damages after a disaster and preventive measures for quick recovery are essential as well. However, there is always a limited budget compared to the required maintenance and preventive activities. So we may get very different results depending on how we plan. It is very important to develop holistic and sustainable budget plans.

FUTURE DIRECTIONS:
Although the urban infrastructures are familiar to citizens in general, people do not pay much attention on the importance of them. Urban infrastructures are the property of all our valuable citizens who are supporting the economic and cultural societies. A smart automation system should be installed, so that it can immediately detects potential problems and issues and proposes appropriate solutions. We need to go through a complex, multi-step process that evolves and eventually completes to actual accomplishment, which ranges from sensor technology to performance model, degeneration model, life expectancy model, and etc. The level of research of Korea 's urban infrastructure is not much different from the state of the art in the United States. Rather, Korea's research leads in several fields. However, the problem lies in practical applications. In order to effectively apply budgets to certain projects, citizen's consciousness and awareness about public goods should be improved and involvement strongly encouraged in many ways.

AAAS-KSEA-KOFST Joint Session on Science Diplomacy

In this session, we discuss the role and the contribution of the international scientific cooperation and science diplomacy to the peace and prosperity in East Asia. Recently, science is becoming increasingly critical in complex international negotiations and addressing global challenges such as earthquakes, deforestation, ecosystems management, volcano eruptions, climate change, and other natural catastrophes. Moreover, in the age of accelerating science and technology, science diplomacy is increasingly becoming a central element of the public diplomacy and a soft power, and is emerging as an active area of study and policy considerations. At the critical time of various dialogues in Korean peninsula and in the region, we discuss the role of science diplomacy and other related issues for enhancing cooperative activities and contributing to prosperity despite rapidly changing, challenging environments. We will examine the notable example of the Mt. Paek-du international research cooperation, and other areas of potential exploration.

Chair	KIM, Seunghwan	Dean of Graduate School, POSTECH
	YU, Jaehoon	Professor, U. Texas-Arlington, Former President, KSEA
	MESFIN, Mahlet	Director, Center for Science Diplomacy, AAAS
Speakers	STONE, Richard	Howard Hughes Medical Institute
	CAMPBELL, Cathy	Visiting Scholar, AAAS/Former ECO, CRDP-Global
Discussant	PARK, Chan-Mo	Honorary President, PUST
	Other participants to be added	

Time	Title and Speaker
1:30 PM	**Opening Remarks** President of KOFST, Chairs
1:40 PM	**Keynote Speeches**
2:20 PM	**Round Table Discussion**

UNIVERSITY LEADERSHIP FORUM

University Leadership Forum was held to discuss about Advancement of Science and Technology (S&T) through the Cooperation between Korea and US Universities. It was moderated by President Mun Y. Choi of University of Missouri (UM) System and Prof. K. Wayne Lee of the University of Rhode Island (URI), the 36th KSEA Former President.

President Choi opened the Forum by indicating that it would be an excellent opportunity to meet university leaderships in Korea and the U.S. together and discuss about following, not to be limited, topics:

1. provide collaboration opportunities among universities in Korea and the U.S.;
2. discuss future challenges in university administration;
3. incorporate technological advances into university administration; and
4. share best practices in higher education

Chair: Mun Y Choi

President of the University of Missouri System

Co–Chair: Kangwon Wayne Lee

The 36th Former KSEA President

Provost Simon Geir Moller of St. John's University (SJU) provided a keynote speech that there are three challenges on collaboration, i.e., (1) Cost, (2) Access and (3) Technology. However, it can be overcome with close partnership through understanding the nature of collaboration. He closed his remarks that we should know how to implement the plan not only making it.

Chancellor Chan-Mo Park of Pyongyang University of Science and Technology (PUST) provided potential opportunities at 3 different levels: (1) US-Korea Joint, e.g., nuclear and spaceship etc.; (2) National level, e.g., NSF & NRF; and (3) Individual level. Since he served as President of Pohang University of Science and Technology (POSTECH), he also provided successful joint ventures, e.g., joint research with Carnegie-Mellon University. He also encouraged working with North Korea for the globalization efforts in information technology (IT) and convergence area etc. He closed his remarks that we have to share best practices in higher education including moral issues etc.

President Sang Hyuk Son introduced Daegu Gyeongbuk Institute of Science & Technology (DGIST) and provided its unique experience to advance S&T through an open colloquium. He started that DGIST might have 200 majors although it has 200 students, because each student has different path. DGIST has been emphasized students-oriented education though continuous considering how they teach students and observing what students will learn etc. In addition, they currently emphasized on 4 components for all students: (1) basic science and engineering, (2) social science, (3) creative leadership and (4) entrepreneurship. It appears that they have similar approach like Olin College in the US. Yet, one unique approach is requiring musical instrument or singing.

The panel discussion included the direction of national policies in the U.S. and Korea to promote and support higher education, and the national policies to train young generations in a timely fashion in preparation for the future.

Dean Katia Passerini of SJU College of Professional Studies provided her experience if global collaboration through summer school, e.g., Hanyang University. Considering rapid advancement of technologies, she emphasized the importance of S&T to younger generation and future workforces.

Vice President and Provost Wankyun Chung of POSTECH indicated that it is important to cooperate more actively after signing Memorandum of Understanding (MOU). POSTECH is caring the 3rd generation carefully, and hope that they will make positive in our society.

Vice President and Provost Duck-Kyun Choi of Hanyang University attended on behalf of President Son. He indicated that there seem to have more difficulties for private university faculty to fulfil their duties than public one. In addition, there are more financial difficulties. Currently 60% of accommodation capacity has been occupied. Those gaps can be filled by more foreign students. There should be more emphasis on career path than occupation.

Chancellor Park of PUST asked DGIST President Son how they handle job application of graduates. President Son answered that actually industry/government want to have more DGIST graduates because they have wider/broad understanding and they know how to collaborate with others.

Mr. Hoseob Won of Maeil Business Newspaper asked if Korean Ministry of Education eliminate Geometry and Advanced Science from Korean SAT, what would be the effect? Most attendees including Chancellor Park, Prof. Chai Chin Suh of SNU (retired), Prof. Suh and Prof. Hong T. Hahn of UCLA (retired) expressed it a wrong thing because these are basics for S&T.

Prof. Moon Won Suh of North Carolina State University (Retired) and State University of New York suggested that university leaders should promote collaboration actively. He also asked Provost Choi how the G3 program among Honam U., Hanyang U. and KAIST works without MOU. Provost Choi mentioned that unfortunately G3 does not work well due to unbalanced feature. When they do collaboration with foreign universities, it should be awarded that MOU does not say what they supposed to do.

Provost Choi of POSTECH wanted to visit the meaning of true cooperation. He wanted to incorporate technological advances into university administration. Related about the partnership at CalTech, Dean Passerini indicated that she wants more multidisciplinary program because SJU does not have engineering program except computer science, and SAT is optional. Provost Choi also want to work with effluent students of Law School.

Prof. Suh asked President Son of DGIST the purpose of music requirement, although it is great to know there is no major. He wonders it a fusion science. President Son answered that DGIST promote combined courses, and breadth than depth.

The most important outcome was to learn from each country's university leaders their thoughts and to work together in a strong partnership ushering in and shaping the effective higher education system. We plan on hosting at least such forum every UKC to continue strengthening U.S.-Korea partnership in science, technology and entrepreneurship.

SK INNOVATION

Recently with advances in computing power and computational methods, first-principles based atomistic simulations have become an essential tool for not only academic research but also technological development in industry. They can provide a detailed understanding of reaction mechanisms and related material properties, which further helps to design, evaluate, and optimize materials and processes. Moreover, computer simulations support and complement experimental studies, and vice versa. The synergistic collaboration between theory and experiment greatly aids accelerated materials discovery and process optimization, and thus rapid technological advances across a wide range of industries. Supported by SK innovation, this forum will touch on recent progress in modeling and simulation of energy materials and catalytic processes, with introduction to some key research activities at universities and national laboratories in both the US and South Korea. Through the panel discussion, this forum will also seek more effective strategies and future directions for successful collaboration in R&D between academia and industry as well as between theoreticians and experimentalists, in addition to potential collaboration opportunities.

Chair: Gyeong S. Hwang (University of Texas at Austin)
Co-Chair: Cholho Lee (SK innovation)

Time	Title and Speaker
4:00 PM	**Welcoming Remarks and Introduction to R&D at SK innovation** Dr. Seongjun Lee (SK innovation, Head of Institute of Technology Innovation)
4:15 PM	**Recent Progress and Remaining Challenges in Modeling of Battery Materials and Performance** Prof. Gyeong S. Hwang (University of Texas at Austin)
4:35 PM	**Current Status of Computational Catalysis in South Korea** Dr. Hyungchul Ham (Korea Institute of Science and Technology)
4:50 PM	**Computational Materials Research for Advanced Li-Ion Batteries at LLNL** Dr. Kyoung Eun Kweon (Lawrence Livermore National Laboratory)
5:05 PM	**A Theoretical Approach to Designing Catalysis for Sustainable Hydrogen Storage Cycle** Dr. Jong Suk Yoo (Massachusetts Institute of Technology)
5:20 PM	**First Principles Modeling of Catalysis** Prof. Andrew Peterson (Brown University)
5:40 PM	**Panel Discussion** Dr. Shinyoung Kang (LLNL) Prof. Su Ha (Washington State University) Prof. Taejin Kim (Stony Brook University), and all attendees

KWiSE-KOFWST Forum (Korean-American Women in Science and Engineering/Korea Federation of Women's Science & Technology Associations)

Organizer, Hee–Yong Kim

Chief, Laboratory of Molecular Signaling, NIAAA, NIH
President, KWiSE

Co–Organizer, Myeong–Hee Yu

President, KOFWST & Principal Research Scientist, the Biomedical Research Institute, KIST

I. Presentation Titles and Speakers

Hee-Yong Kim (NIH, USA), KWiSE Outlook/ **Myeong-Hee Yu** (KOFWST, Korea), Introduction of KOFWST/ **Suk Kyeong Lee** (The Catholic University, Korea), It Is Time to Consider Sex of the Cells You are Using/ **Julie Paik** (Johns Hopkins University, USA), Moments of Discouragement, Hope and Wonder: Perspective of An Aspiring Korean American Female Scientist/ **Jennifer Hyunjong Shin** (KAIST, Korea), Laboratory Safety Management for Women Scientists/ **Sujin Lee** (Emory University, USA), Kids Draw Scientists as Women/ **Miyoung Song-Jeung** (University Hospital of Strasbourg, Strasbourg, France), EKWSEA and Women Scientists in Western Europe

II. Panel Discussion

MiHye Kim (Chungbuk National University, Korea)/ **Heykyung Lee** (Johns Hopkins University, USA)/ **Ran Baik** (Honam University, Korea)/ Myung-Hee Park (NIH, USA)

III. Key Messages

Korean-American Women in Science and Engineering (KWiSE) and Korean Federation of Women's Science & Technology (KOFWST) invite you (regardless of gender) to the Women's Forum entitled "Gendered Innovation and Women's Leadership." It is organized to promote a spirit of pursuing scientific excellence for discoveries in the era of the 4th industrial revolution with attention to gender-related issues. The goal is to harness the untapped leadership potential of female scientists and engineers to empower a future generation of women leaders in science and technology. It will be an interactive and engaging event to further foster peer networking and mentoring among attendees. KWiSE and KOFWST provide a platform for current and future leaders to meet in an environment where meaningful partnerships and friendships can be nurtured. It should be a great opportunity to exchange ideas, learn and inspire, and promote better leadership for a changing world.

IV. Critical Challenges

This year we have also actively recruited women speakers at the scientific sessions/forums of UKC to make it easier for them to participate in the Women's Forum. We have also invited younger generation professionals to the forum as speakers to share their experience and challenges. Continuing efforts should be made to encourage participation of young women scientists at UKC and KWiSE-KOFWST forum to truly take advantage of the multigenerational and multidisciplinary networking opportunity the KWiSE-KOFWST forum offers.

V. Future Directions

It is important to attract young generation women scientists/engineers to participate in the forum for nurturing future women leaders in the science and engineering fields. The KWiSE-KOFWST Forum at UKC may continue to serve as a platform to exchange ideas and encourage the future generation by discovering/highlighting new talents and providing opportunity to network among the current and future women leaders in the math, science and engineering fields.

Young Generation and Professional Forum (YG/PF)

Stella Chun
Chair

Account Manager
Thermo Fisher Scientific

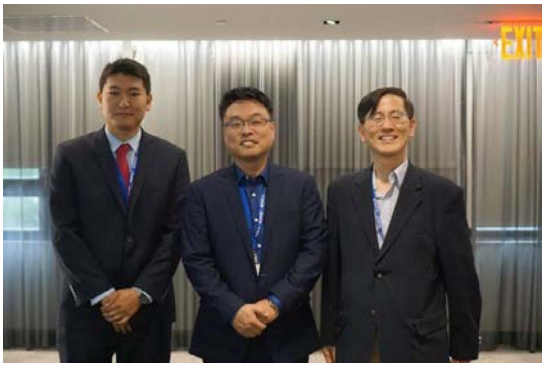
Clara Kim
Co–Chair

Student Pharmacist
UNC Eshelman School of Pharmacy

The Young Generation Forum (YGF) and Professional Forum (PF) at the US-Korea Conference (UKC) are forums under the Career and Leadership Track called the "Young Generation and Professional Forums (YG/PF)." The Young Generation Forum at UKC aimed to provide career development and leadership training to next-generation students and early career professionals, who generally have less than 5 years of work experience. The Professional Forum at UKC explored different topics that are not readily discussed in the workplace and was aimed to provide guidance and skill set to mid-career industry professionals. The goal of YG/PF was to address topics that will help them grow professionally, regardless of the career track, academic or industry.

The YG/PF was comprised of 6 sessions:

"How Can Korean Americans Develop a Successful Career in the US?" by *Dr. Jae Kim (The Boeing Company) and Dr. Alex Lee (Schlumberger)*.
Dr. Kim and Dr. Lee shared the fine intricacies of why it may be difficult to be recognized, promoted, and fairly compensated in the workplace. Participants especially enjoyed the two senior professionals' revealing of secrets on how to market yourself into the talented person you deserve to be seen as, and how to stay ahead of the curve academically, professionally, and beyond.



"Conflict Resolution in the Workplace" *by Wokie Nwabueze (Princeton University)*.
Conflicts in the workplace are inevitable and as Korean-Americans, we tend to struggle on how to deal with conflicts. This workshop showed the participants how to find their own ways to resolve conflicts and how certain factors like culture can play a role in our interactions in our careers. Participants were highly engaged in this interactive workshop and found their own conflict resolution styles.

"Personal Finance Essentials for YGF" *by Daniel S. Lee, a portfolio manager at B|O|S*
Daniel reviewed basic personal financial concepts and also shared strategies to combat struggles that students and young professionals often face, such as paying off student debt and ways to build credit.

"Problems, Promises and Projects of Blockchain" led by Jin Chung (Balance.io)
After a brief overview of the technical aspects that make up a blockchain, Jin discussed the many scalability issues that hinder blockchain from becoming mainstream and potential solutions that are currently in the making. She also gave us a glimpse at what the future of blockchain technologies could look like once these hurdles are surpassed.

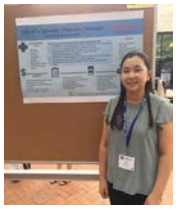
"Navigating Through Career Choices and Important Decisions" led by Dr. SJ Claire Hur (Johns Hopkins University), Aaron Myung (Korbit USA), Dr. Jae Kim (The Boeing Company), and Dr. Alex Lee (Schlumberger)
The panelists shared their stories on success tips and career transitions. Following their panel session, a roundtable discussion was held to give the audience opportunities to ask/discuss career-specific issues in academia or industry.

"Personal Finance Essentials for Professionals" by *Daniel S. Lee, a portfolio manager at B|O|S*
Daniel addressed the relationship with money and set some practical guidelines on best practices to get a good start. He showed some helpful strategies for short-term goals that professionals may often set, such as buying a house or finances related to getting married or having a child. He also reviewed strategies for long-term goals such as saving for retirement inside and outside of employer-sponsored plans.

YG/PF Testimonials

Seunghwan Lee, PhD Candidate, Rice University
UKC YGPF 2018 has given me a great opportunity to share my KSEA activity in Houston, Texas. As I emphasized in my presentation, Houston provides a mixture of engineers working in oil and gas industries and researchers working in Texas Medical Center. Moreover, I was able to successfully convey the reason behind our KSEA YG chapter naming our group KONNEC+ instead of KSEA YG to embrace non-STEM people in the area. My experience in KSEA SoCal chapter has helped me provide constructive feedback for the chapter as well. It was such a great honor to have received the best chapter award for KSEA South Texas chapter and the best leadership award for presenting about KONNEC+, KSEA-ST YG chapter.

Hailey Bae, Program Manager, Amazon
As a third-time YGPF participant, I am impressed with the way the program has evolved over the past years. The organizers did a phenomenal job inviting speakers that are interesting as well as relevant for Korean American young professionals. I especially enjoyed Wokie Nwabueze's session on Conflict Management in the Workplace as the session incorporated interactive activities with real life examples. Furthermore, the career speed talks were great opportunities to hear personal stories that all of us can relate to some extent as we share common backgrounds and are in the similar stages of early professional career. I am looking forward to attending future YGPF programs and excited for its growth.



Carol S Rim, Specialty Pharmacy Manager, Walgreens
"This was my 3rd UKC YGPF I attended and I enjoyed the programs planned by the organizers. As a newly promoted manager, I especially liked the "Conflict Resolution in the Workplace" since the soft skills were relevant and practical that were never taught in school. It was also memorable to have met other pharmacists who are experiencing the same ups and downs as I am as a young professional. Overall, I gained valuable skills and connections that I wouldn't have found elsewhere. Thank you organizers and the sponsors for a great conference!"

Katherine Cho, PhD Student, UCLA
"This year's conference was very memorable, especially in the programming that targeted not only my professional concerns (such as hiring practices and management), but also addressed the concerns many of us experience as Koreans and Korean-Americans living in North America. Specifically, I appreciated the conversations about emerging trends within research, challenges within our communities, and the opportunities to meet them and surpass expectations."

Junghee Justin Kim, Electrical Engineer, Empire Electronics, Inc.
After leaving academia, it is difficult to learn/experience the latest technologies in science and engineering. UKC, however, is a great platform which offers the most up-to-date practical topics that reflect a global interest in a variety of science and engineering fields. UKC offers many sessions, yet the conference is well organized, so it is easy to coordinate my schedule during the conference. My expectation of the contents of the sessions and networking opportunity is always fulfilled from UKC.

Paul Kim, Strategist, Samsung
I have attended Ygnite before, but this was my first UKC event. I really enjoyed networking with many high-achieving Korean American professionals from various fields and many stages in career. The conference program was great as well. I am grateful for the opportunity to hear from inspirational speakers and to benefit leadership-building sessions.

Nayeon Hazel Kim, Paralegal, Tofer and Associates, APLC
This was my first UKC and I enjoyed every moment! It was a perfect chance to network with people within and outside of my field and share different stories. Thank you for all those who put in a lot of time and effort to make this happen.

June Park, Graduate Student, University of Michigan
YG/PF consisted of interesting sessions and insightful lectures that were both enjoyable and practical. Each session consisted of delivering tips and soft skills that are useful for emerging young leaders in industry and academia.

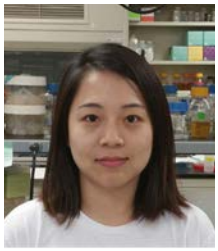
Yun Jae Cho, Software Engineer, Bosch
I liked how we were well-integrated into the rest of the conference and free to choose which sessions we could attend.

2018 KSEA-KUSCO Graduate Scholarship Winners

Seongjun Park
Massachusetts Institute of Technology

Ji Soo Park
Georgia Institute of Technology

Junsuk Ko
MD Anderson UT Health Graduate School



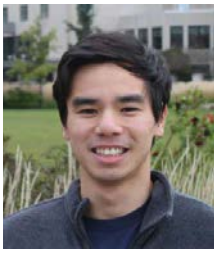
Minseon Kim
The University of Texas MD Anderson Cancer Center

Vinna Nam
California Northstate University

Chulwoo Park
George Washington University

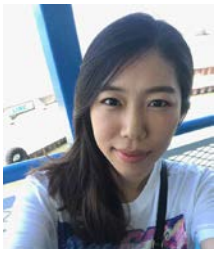
Jonathan Lee
Harvard University

Hong Gyoon Jung
Southern Illinois University



Do Soon Kim
Northwestern University

Yuna Oh
Weill Cornell Medicine



Ji Young Kim
University of Michigan

Jaehoon Jeong
University of Maryland

Junho Lee
Texas A&M University

Jin Hong Mok
Ohio State University

Yooseob Song
Louisiana State University

Donghee Koh
University of Tennessee

Jun Kim
Rice University

Haena Kim
University of Washington

Namho Cho
Arizona State University

Brandon Wang
NYU School of Medicine

Data Science Workshop (DSW): Inaugural Event at UKC 2018

Ahreum Amy Han
Chair

Business Data Analyst
IBM

DK Kim
Co–Chair

Data Scientist
Edison Energy

Benjamin Lee
advisor

Senior Research Associate
Weill Cornell Medicine

Data and analytics are now key to business decision making, driving research, and automating human tasks. However, finding value from data requires more than just using tools but rather also interpreting and bringing meaningful insights from hidden patterns. A brand-new program area of Workshops was held at the US-Korea Conference (UKC) 2018 for the first time. This 2 day workshop was aimed to provide the hands-on crash-course to the world of data science, analysis and modeling using popular open source tools; R or Python. A total of 70 seats were filled with 33 attending the 1st day's 4 sessions and 37 attending the 2nd day's 4 sessions.

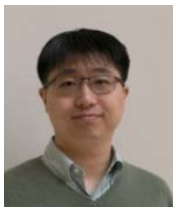
During the workshop, basic data analysis topics were covered including: exploratory data analysis (EDA), data cleaning, data storage / import & export, and linear regression. Based on available time, some machine learning models and applications topics were covered such as multivariate analysis and random forest.

1. The DSW was comprised of the following 4 sessions for each day and led by the following instructors:
2. "Introductory/Basic Data Science in Python" *by Parth Vadera (Publicis media) and Karl Kwon (In4mation Insights)*
3. "Intermediate/Advanced Data Science in Python" *by Parth Vadera (Publicis media) and Karl Kwon (In4mation Insights)*
4. "Introductory/Basic Data Science in R" *by Jeho Park (Claremont McKenna College), Albert Lee (Counsyl) and Stephen Park (Virginia Tech)*
5. "Intermediate/Advanced Data Science in R" *by Jeho Park (Claremont McKenna College), Albert Lee (Counsyl) and Stephen Park (Virginia Tech)*

Junghee Justin Kim, Electrical Engineer, Empire Electronics, Inc.
"I went to the basic R and Python Panda library class. The lecture content was appropriate for each level. I liked the way that the two different programming tools were similar when running at the same time. I was able to take basic R and advance Python without revisiting class on Saturday. Lecture material was provided to the attendees after the conference so it was very helpful too."

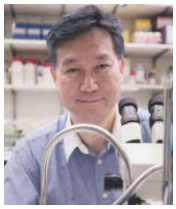
KiBeom Kwon, Graduate Student, University of Washington
"The data science workshop was very helpful for me in understanding the basics of R programming. The instructors were engaging and kind when answering questions students might have. Furthermore, they facilitated additional questions. Their sample questions and hands-on experience helped me play around with the programming."

Yun Jae Cho, Software Engineer, Bosch
"It was a very informative and easy-to-follow intro session. I hope something similar could be extended next time. My suggestion for the instructors is to take a little more time to explain the motivation behind and expectation of each step of exercise. Otherwise, it is very easy to lose track and simply follow the instructions."



Il Taek Kwon, Algorithm Engineer, ZF TRW
"Could be a good opportunity for learning the basics of coding for beginners. Could be a great opportunity for getting a taste of data science and as a useful tool for everyone. Instructors and assistants are constantly checking us to make sure everyone is following the pace. You have to try. You would not regret."

June Park, Graduate Student, University of Michigan
"DSW 2018 at UKC was a fun and helpful half-day workshop that let me polish my skills in Data Science. With skilled instructors and thorough direction for hands-on coding practice, DSW was a very practical and effective experience for me. Thank you organizers and instructors!"



Donghoon Yoon, Assistant Professor, University of Arkansas
"It was well-fitted to me as one who does not know anything about R. Unlike other introductory courses, this workshop was really designed for complete beginners and make me a first move. Instructors were excellent and kind enough to babysit me. Thank you very much!!!"

Woong Hee Cho, PhD Candidate, UT Southwestern Medical Center
"I would like to thank Amy Han for organizing Data Science session, I took intro to R and I think it was one of the best sessions I enjoyed at the conference. Very organized and the instructors and staff were all helpful!"

Sunkyu Park, Associate Professor, North Carolina State University
"This is a great opportunity for me to learn something new! I took the intro-level course and it was just right for me. Thank you for organizing the event making the UKC program even better!"

GLOBAL YOUNG GENERATION S&T LEADERSHIP TRAINING PROGRAM by KOFST and KSEA

KSEA and KOFST co-hosted the 1st Global Young Generation S&T Leadership Training program during UKC 2018 in New York. 17 graduate students and postdoc from Korea participated program.

KSEA NY Metro chapter members including Jaewon Kang, Seogjoo Jang, Eonsoo Lee, Minsuk Kang, Ohbong Kwon, Tae-Mun Chung, Chun-Tak Kwon, Junhwan Bae, Chang-Yong Nam and others prepared the programs for several months and worked as organizers and mentors.

The training programs over 7 days included PPPL and Princeton University Tour, Cold Spring Harbor Lab Tour, Brookhaven National Laboratory Tour, Young Scientists and Engineers Leadership Workshop and UKC 2018 participation.

The leadership workshop programs led by Dr. Seogjoo Jang, Jaewon Kang and Eonsoo Lee focused on career opportunities and development in the US. All 17 participants were actively engaged in the UKC 2018 programs and 5 participants received poster awards.

Based on the success of this year, KSEA and KOFST plans to expand this global YG training program with students from Korea at UKC 2019 in Chicago.

Organizers and Mentors: Jaewon Kang, Seogjoo Jang, Eonsoo Lee, Minsuk Kang, Ohbong Kwon, Tae-Mun Chung, Chun-Tak Kwon, Junhwan Bae, Chang-Yong Nam and others
Participants: 17 graduate students and postdoctoral researchers from Korea

Date	Program
July 29, SUN	• Arrival at St. John's University Conference Center / Check in and Lunch • Welcome by the KSEA President, Self-Introduction and Orientation by Mentors • New York Manhattan Night Bus Tour
Princeton Plasma Physics Laboratory and Princeton University	
July 30, MON	• Princeton Plasma Physics Laboratory • School of Engineering tour • Princeton University Campus tour • Introduction and Overview of the Workshop Program • Special Lecture for Career Development and Discussion - Dr. Sung Kwon Kang, IBM Watson Research Center
Cold Spring Harbor Laboratory	
July 31. TUE	• Cold Spring Harbor Lippman Lab Tour • Cold Spring Harbor Bio Lab • Workshop at St. John's University - Lecture 1: Research, Funding, and Career Opportunities in the US Higher Education and National Laboratory - Lecture 2: Research, Funding, and Career Opportunities in the US industry and for-profit research institutes - Lecture 3: Fundamentals of successful job applications in the US and tips for CV preparation - Lecture 4: Essential Elements of Scientific Communications in the US - Activity 1: Self Introduction of Each Participant and Comments by Experts
Brookhaven National Lab	
Aug. 1, WED	• Brookhaven National Lab tour (Overview, 2 facilities tour) • Workshop at St. John's University - Lecture 5: Understanding challenges and mission as Korean-American Scientists and Engineers in the US - Lecture 6: Understanding the research culture and expectations in the US (academia) - Lecture 7: Understanding the research culture and expectations in the US (industry and for-profit research institutes) - Lecture 8: Effective Presentation and Communication Skills - Activity 2: Three-minute elevator pitch of each participant and comments by experts - Activity 3: Five-minute research slide presentation by each participation and comments by experts
UKC 2018	
Aug. 2-3, THU & FRI	• UKC 2018 Plenary Session, Symposium, Forum, Poster Presentation, YGPF
Closing and Departure	
Aug. 4, SAT	• Departure at JFK

Eunmi Jo, PhD Candidate, Korea Institute of Science and Technology
I am honored to be selected the winner of MSE poster session at UKC2018 in New York. It was a great time to share my research area and my opinion with Korean scientists in the United States. Above all, the training program on the academic presentation planned by the KSEA led to better results. I will always be open-minded without losing my confidence in future research activities. Thank you again for giving me a good opportunity.

Sang Soon Kim, Research Scientist, Seoul National University
It was so meaningful experience to attend the program. During the program, I can feel the advanced infra of laboratory in USA. Moreover, I can hear the advantages and difficulties from the researchers working in that laboratory. During and after the conference, there were lots of time to have conversation with other researchers. I had a so valuable time in NY by attending the program, and this will be helpful to decide my further career.

Yunhan Kim, PhD Candidate, Seoul National University
First of all, I'd like to thank you for giving me this great opportunity. Thanks to the program, we can visit many laboratories which we cannot visit by ourselves. From the laboratories tour, I can know how the post-doctors work and live there. Also, three mentors gave us meaningful advices and presentations. Especially, I'm interested in working in the U.S. industry and I could learn how I can prepare for working in the U.S. industry. Finally, I could make many friends for networking with Korean-American researchers. I'll try to keep this valuable networking. However, one thing I desire next time is to make flexible schedule. Since the schedule was too tight this year, we missed some programs. Nevertheless, all of the programs were great for me and I got so motivated. Thank you!

Hoyung Kang, MS Candidate, Korea Advanced Institute of Science and Technology
One week in New York for UKC was really valuable time for me. It seems everyone put much effort to make valuable experiences. However, it was overwhelmingly tight schedule. Many participants had hard time overcoming the jetlag in 8-21:30 schedules. Moreover, I wish it can improve if we have more networking time within ourselves and with other UKC volunteer or KSEA YG/PF members. I had short time hanging out with UKC volunteer on the cruise, and it was really good and valuable experiences talking with researcher in abroad. Therefore, switching some of classes to networking time would be really great. Moreover, I wish there was some more specific research area for conference. I had hard time choosing my poster session major. It seems it is mainly focused on the biomedical area, while material science seems not focused. Nevertheless, it was really appreciated time to enjoy the conference in New York.

Youth Science and Technology Leadership Camp (YSTLC) 2018

HEAYEON LEE, PhD
YSTLC Chair

President/CEO
Mara Nanotech New York, Inc.

In connection with the UKC2018 conducted the Youth Science and Technology Leadership Camp (YSTLC). This new tradition of UKC to educate youths from 8th to 12th graders started in UKC2016. This year, YSTLC2018 was structured as 8 nights - 9 days (July 27th to August 4th) course. All mentors provided very detailed guidance and lectures to nurture them, so that they can one day become the next generation of scientists and leaders.

The students listened attentively to their speaker about the importance of STEM and and participated actively in the discussion. The students exhibited unlimited curiosity and never-ending energy to explore all disciplines of science and technology. The students were fully exposed to STEM area during the first half and then naturally merged with the schedule of UKC2018 events for the second half. During this initial stage of exploring STEM fields, the students worked on scientific projects at St. John's University, and visited various research facilities (IBM, CCNY ASRC) and academic laboratories (Harvard university, Columbia university, MIT, NYU, Cooper Union). At this step, the students also have chances to assess their own scientific interest by attending intensive lectures from KSEA leaders, academic professors and industry experts. During the second phase, students solidify their commitment to STEM and started to understand academic preparations that they need to structure until they enter college, and this was another fun part of the camp. They get to learn how to read and understand official scientific program book and decides what scientific sessions that they wish to attend with their mentors.

The objective of the YSTLC is really simple. It lets us show the students what STEM tastes like, feels like and smells like. Our intention was not to drill knowledge into them but to help them to discover STEM inside their heart. The camp taught the students to (a) reassure themselves that they will be future leaders, (b) to perform self-assessment on whether they will enjoy career as scientists, engineers, physicians and technologists and (c) to confirm what field of science, medicine or technology that they will start to prepare. This intensive YSTLC program was organized by Dr. HeaYeon Lee (Mara Nanotech New York, inc,) as the chair, Dr. Sungeun Choi (CUNY Queens College) as the co-chair, Ms. Joanne Lee (Columbia university) as the Human Resources Manager, Ms. Ju E Jung (American University) as the Financial and Administrative Manager, Ms. Euna Yoon (KSEA HQ) as the administration director. The mentors were Youngtae Seo (CUNY Queens College), Alexander Bae (Princeton university), Esther Shin (NYU), Seokjoo Yoon (Connell University), Charlotte Kim (CUNY Baruch).

YSTLC report:
https://www.youtube.com/watch?v=KyrAFtO8XPI

Will Lee (Cresskill HS, NJ)

Alright, hey there. My name is William Lee, rising junior who went to the YSTLC and all that in 2018. Now I'm sure those other people who wrote their long speeches about how this program was fascinating and eye-opening for their future and all that, and yeah I completely agree with that. But no one really likes to read a long essay about why this program is great, at least no kid I know (me especially). So I just want to be real here and speak from my own heart and stuff. No sugarcoating or puffing up or formality whatever it's called, just an all genuine testimony from me.

Me personally, I loved the living nuts out of the whole camp. It was yes indeed, "eye-opening" and everything. Honestly, I really didn't want to go. It cost a bit of money, I had to leave my house to live somewhere else for A WHOLE WEEK, I mean I really was going to miss my computer and all of my games to live with some strangers I've never met and travel around the country with 'em. But as soon as I got there, I could feel all of my tension and anxiety bubbling away. With such open and energetic staff like Seokjoo (I guess mentors count as staff?) and Joanne, I thought maybe my week wouldn't be as bad. And sure enough, it was fun all week long. From the definitely not potentially fatal bus ride in a thunderstorm to playing huge jenga, I went through experience after experience laughing, having fun, and bonding with everyone else. The first day I might have not remembered anyone else's name, but now I'll never forget them for the rest of my life. Even the lectures and the science musical and especially the poster project, three things which I was very very unsure if I would be able to survive, were made much more bearable with the people around me. I don't know what other people say, but for me it was the community that really wanted me to stay forever and continue having fun.

But obviously, the camp isn't meant just to socialize, and it managed to be very educational as well. The many college trips showed me a lot about how my future can turn out to be and what to expect, as well as talks with the mentors really helped me know what I was doing (probably because all I did was play around and not really pay attention to what I should prepare for the future). The trip managed to teach me a lot about the outside world, how science is progressing, what the world needs, and what problems my generation would be tasked to combat, at least in the field of science. It was all very exciting to learn about as well as imagine what I could be doing to help society advance, to be honest. All of this learning without being boring was something I never really noticed until looking back. I really did learn a lot about what I should do. It was pretty cool. Yea. Pretty cool.

So, it was the last day and whatever, I was thinking to myself, 'Wow it's already over. I'm never going to see these people again.' The pictures of our week together were scrolling by, stuff like that. I guess what I'm trying to get at is YSTLC is something worth going to. It's not a dumb science camp where you do little lab projects and learn about physics or watch people talk about whatever they are studying. It's for you, the kids, to have a better grip on the world. It's for you to have fun and mingle with others, all while discovering what your calling in life is. Yes, this kinda really does sound all fake-inspiration and whatnot, but take it from me, a kid who was just like you, who didn't want to exert my own time and energy to go outside of my room. It's something I sure as grapes want to go to again, maybe even as a mentor. It's worth it. Believe me.

Tommy Cho (East Brunswick HS, NJ)

YSTLC will always be one of the best memories in my high school years. It was a great opportunity for me to learn what awaits for me beyond my education and what kind of jobs I will be doing in the future. The big new thing that everyone in the industry is talking about right now is AI: artificial intelligence. During the program we were exposed to lots of ideas, examples, and functions of artificial intelligence and the lengths that scientists and researchers have gone to make it all possible. I met many amazing and intellectual people at the UKC (a conference for Korean-American scientists) who were all very enthusiastic to see what AI can bring to the world. To me, the most important part of YSTLC was discovering what lies ahead of the current technology that we have. As of right now, the world is in the fourth industrial revolution, discovering ways to merge the physical and digital realms, and connecting the world to the "Internet of Things". I am very excited to work in this field of science in the future and I probably would not have garnered enough interest and wonder without YSTLC. If you enjoy science, or if you are curious about where the state of technology is at the moment, I would definitely recommend YSTLC as it will open your eyes to the world around you.

Haven Ahn (Northfield Mount Hermon, MA)

I'm Haven from Worcester Massachusetts, currently attending Northfield Mount Hermon School. YSTLC 2018 was an unexpected but enjoyable activity this summer. I was able use high tech, expensive equipment that I dreamed of. Also, I met good people who I still keep in touch with. It was overall a good experience and I am willing to come back as a mentor or something. I recommend highly.again next year.

David Oh (Stratford HS, TX)

YSTLC was worth the 2000-mile trip from my home town Houston Tx. The experience was amazing, both fun and educational. It was very well thought of and compact for I can see the hard work the organizers put into this. It gave me opportunities I could never get before, such as touring a multibillion dollar company and state of the art laboratories to attending an actual science conference! The trip was less about educating myself with knowledge, but exposing myself to a scientific environment and experience. With every conversation I had, I learned more about the scientific road ahead and if I want to even continue it. YSTLC reaffirmed my passion for science and inspired me to try my best so I can be involved with these sorts of events. Aside from the amazing experience, there is no worrying about safety or unfriendliness. The mentors were sure to keep us safe and everyone was incredibly welcoming; it wasn't hard to make friends at all. YSTLC is not only the highlight of my summer this year, but probably one of the best summer experiences I have had in my life.

Sijean Ahn (Christian International School in Daejeon, South Korea)

This is the second time for me to participate in YSTLC and it was pleasing to do so. Both 2017 and 2018 YSTLC was fun and inspiring to me. That was why I decided to participate twice. There were many differences I could notice compared to last year. These are just the 2nd and 3rd YSTLC, so there would be many changes, but the biggest change that I noticed is that the camp is becoming more intense. I don't mean that I didn't like the last year camp, it was fun and not pressuring, but seeing the camp becoming systematic was making me think that this camp program would become a notable program. There were some mistakes during the camp, but I believe that as the camp develops and goes through some trials, it would become a meaningful program to both students and adults who are involved. I believe that it is already the most memorable camp in my life and it would affect me very much. I would say that if someone is interested in science or thinks that he/she likes science, it is worth to try many things in this camp.

Inaugural UKC Public Session 2018

Planning:

The US-Korea Conference (UKC) Public Session 2018 successfully commenced on August 2nd - 3rd, 2018 at St. John's University. Over the past few years, UKC had offered a single scientific lecture designed for the general public community. For the first time, this one lecture was expanded to a comprehensive two-day UKC Public Session 2018 Program. This inaugural Public Session was hosted by KSEA, organized by HRCap, and advised by the Consulate General of the Republic of Korea in New York. Public Session 2018 has actively engaged key leaders in Academia, Government and Industry as speakers, organizers, and sponsoring partners from the Greater New York Area to give back to the community. Since January 2017, the Public Session advisors and HRCap planning committee planned and built the infrastructure for this conference to give back and educate the general public in the era of 4th Industrial Revolution and job creations. No event in this nature and scale has ever been designed and launched for the general public by Korean-Americans. Public Session Chair, CEO Sungsoo Andrew Kim presented and advocated the Public Session at over 100 association and sponsorship meetings, thereby promoting the Public Session mission, and fully engaging the New York community and industry leaders to partner and sponsor the program for the public community and our future generation. The committee reached out to 458 different companies and organizations, and reached an audience of 91,903 individuals leading up to UKC 2018.

Summary Overview:

The Public Session featured Career Seminars, the Job Fair, Lectures, and Panel Discussions, and they ran in parallel to the UKC 2018 Symposiums. Participants from various backgrounds attended the Public Session and left much more informed, inspired, better networked, and connected to the community. A total of 260 people participated the two-day event, out of the 355 people that registered. These individuals came from multiple backgrounds and ranged from high school and college recent graduates to experienced professionals and the retired. The Public Session began each day with a Career Seminar, which provided step-by-step guidance for individuals on their road to employment. The all-day Job Fair engaged 10 New York and New Jersey local companies and over 30 corporations and research institutions from South Korea looking to promote their organizations, network, and effectively hire new talents. Throughout the afternoon, lectures and panel discussions focused on scientific advancements and cultural assimilation.

The Public Session began each day with a Career Seminar, which provided step-by-step guidance for individuals on their road to employment. Attendees ranged from college students, recent graduates seeking jobs, and experienced professionals looking for career changes. Seasoned and expert recruiters at HRCap shared unique insights on key challenges in the complete job application process – preparation, personal branding, resume writing, job applications, interviews, follow ups, and offer negotiations.

The Job Fair was also held throughout the Public Session, engaging 10 New York & New Jersey local companies and over 30 corporations and research institutions from South Korea looking to promote their organizations, network, and effectively hire new talents. Both sponsoring companies and participating job seekers shared positive feedback, and government and industry leaders commented that these job fairs are highly instrumental in tackling unemployment and creating new jobs for Korean and US communities. Many job-seeking individuals also stopped by the career consulting booth for expert advice and tips from seasoned recruiters. These career consultants provided various services from resume revisions, market and industry insights, and career development consulting. Individuals were able to take what they learned from the Career Seminar and the 1:1 Career Consultation, and immediately apply the learning during the Job

Fair and Career Interviews that followed. The consultation provided a great starting point for those looking for a new opportunity.

Public Session conferences resumed throughout the afternoon with lectures and panel discussions. These sessions provided deeper content on rising science technologies that shape our lives today and created a meaningful outlet for understanding and appreciation for Korean-American culture and generational divide.

On the first day, lectures and panel discussion focused on modern-day science and technology and how they relate to the 4th Industrial Revolution. Topics ranged from digital technology, robotics, and STEM education and featured a special VIP keynote lecture with the Minister of Korea, Young Min You (the Ministry of Science and ICT). The Minister spoke about the 4th Industrial Revolution and the future of Korea and provided a deeper understanding to the current status and future of technology in Korea. Many attendees from both the UKC Public Session and the UKC Symposium participated in this session.

The second-day conference lectures focused more on Korean-American culture and generational divide and how they relate to the American society. The generational talk show engaged a panel of successful business and academic leaders across Builder, Boomer, X and Y generations. The talk show delved into the generational and cultural divide and how to unite to collectively grow as Korean-Americans. Assemblyman Ron Kim also spoke specifically to the young 1.5 generations on the unique challenges of being a 1.5 generation and how to strengthen ongoing Korean-American presence in the US.

The UKC Public Session 2018 was a first of its kind event that actively engaged and brought together the Korean-American community here in the Greater New York area and most benefited job seekers and future young leaders. We genuinely believe that an educated public and inspired youth community is essential for greater innovations and brighter future for the Korean-American community. We see the UKC Public Session 2018 not as a 2-day event, but a beginning of a greater movement.

Benefits:

The key takeaways and benefits are as follows.

1) **Supporting KSEA Growth**: The Public Session effectively raised tremendous brand awareness for KSEA to industry leaders and the general public. We exposed 90K individuals to KSEA and UKC and encouraged them to become KSEA members. New Business Development had been achieved by raising $26,000 in sponsorship funds and bringing in 23 new local sponsors for KSEA.

2) **Tackling Unemployment**: The Job Fair and Career Seminars were instrumental in tackling unemployment and creating new jobs for Korean and US Communities.

- During the Career Seminar, seasoned recruiters shared unique insights on key challenges in the complete job application process – preparation, personal branding, resume writing, job applications, interviews, follow ups, and offer negotiations.
- Career Consultation provided resume revisions, market and industry insights, and career consulting. Individuals were able to take what they learned from the Career Seminar and the 1:1 Career Consultation, and immediately apply the learning during the Job Fair and Career Interviews that followed. This was a pivotal starting point for those looking for a new opportunity.
- The Job Fair allowed attendees to network with and be interviewed by numerous companies, both local and global. It also provided companies a venue to find new talent for any critical openings. Actual offers and job placement come directly out of UKC as a success case.

3) **Growing Appreciation for Science & Technology**: Public Session conferences provided deep content on rising science technologies and broken down the perception that STEM is unapproachable with barriers. Lectures and panel discussions focused on modern day science and technology and how they relate to the 4th Industrial Revolution. Topics ranged from digital technology, robotics, and STEM education, and featured a special VIP keynote lecture with the Minister Young Min You (Ministry of Science & ICT).

4) **Deepening Korean-American Communities**: Public Session conferences also created a meaningful outlet for Korean-American culture and generational divide. The generational talk show engaged a panel of successful business and academic leaders across Builder, Boomer, X and Y generations. The talk show delved into the generational and cultural divide and how to unite to collectively grow as Korean-Americans. Assemblyman Ron Kim also spoke specifically to the young 1.5 generations on the unique challenges of being a 1.5 generation, and how to strengthen ongoing Korean-American presence in the US.

5) **Inspiring the Public & Future Generation**: The Public Session benefited the current job seekers and future young generations the most. An educated public and inspired youth community is essential for greater innovations and brighter future for the Korean-American community.

6) **Building Communities**: The Public Session actively engaged and ignited the Korean-American community (individuals/associations/companies across academia/industry/government) here in the Greater New York Area.

Sponsor Testimonial: ***Woori America Bank***

The UKC Public Session 2018 Job Fair provided an effective and useful platform for both Korean-American companies looking to hire new talent and job seekers. Through both the Online Job Fair and the 2-day Onsite Job Fair, we met enthusiastic job seekers with various different skill sets essential for our hiring needs. It also provided us an opportunity to build network with HR professionals from other sponsoring companies in the Greater New York Area. Through this engagement, we were able to gain unique insights about the job market from many other HR experts. We thank HRCap for organizing a practical and informative event. We believe events like these are essential for the development of Korean-American communities and look forward to seeing much more in the future as well.

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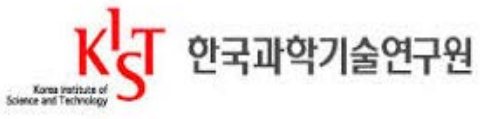

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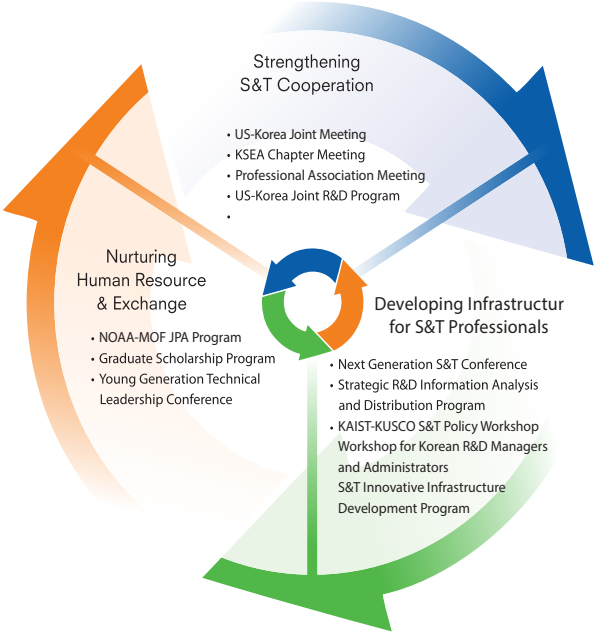

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재료 사업부문	◆ 재료연구소 / 사업부 제품개발 • Display 소재 : Color / 투명 PR 용 감광성 재료 및 분산 기술 OLED물질 합성 및 소자 평가, 형광물질 개발 Polyimide 재료 및 Silicone 재료 개발 • 전지 소재 : 전구체 / 양극재 합성 및 전지 재료 평가 • 신규 분야 : 자동차 구조용 접착재료, 반도체 / 외로 소재 Bulk 세라믹 등 무기재료	대전 서울 청주 익산	화학/화학공학 무기화학 고분자공학 신소재/재료공학 기계/전기전자공학
생명과학 사업부문	◆ 생명과학연구소 • 신약탐색 : 당뇨, 면역항암 신약 및 신규백신 연구, 약효평가, 신규 타겟발굴, 기반기술 개발 • 의약연구 : 독성/DMPK, 합성 및 바이오 의약 분석/평가 • CMC : 바이오 배양/정제공정 개발, 합성공정 개발, 제형 개발 • 임상 : 임상설계 및 관리, 의약품 허가/등록, 학술마케팅 등	서울 오송	생물학/미생물학 (면역학/유전공학) 화학/화학공학 고분자공학 약학/수의학 간호학 통계(임상)

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LG화학

LG화학
R&D 우수인재 모집

LG화학 개요

LG화학은 LG그룹의 모기업으로서 1947년 락희화학공업사로 설립된 이래 지속적인 성장과 함께 20세기 대한민국 화학공업의 발전을 이끌어 왔고, 현재 국내 1위, 세계 5위의 Global 종합화학기업입니다. 고품질 기초소재원료, 그린에너지 분야인 자동차 및 전력저장용 전지, 정보전자소재분야의 편광판, 재료 분야의 차세대 Display 재료와 2차 전지재료, 그리고 Green, Red, White 바이오 분야에서 Global 일등을 향해 달리고 있는 Technology Company입니다.

연구분야

소속	연구분야	연구활동
중앙연구소	정착/코팅/중합연/배양/공정/Simulation 등 기반기술, 에너지 소재, 차세대 기능 소재의 화학적 분석 및 특성 평가, Green/White 바이오	핵심 기반기술의 육성과 융복합을 통하여 현 사업의 경쟁력을 높이고친환경/에너지 소재(연료전지 핵심전지 등), 무기소재(금속/세라믹 등), 고기능 신소재, 바이오 신소재 등 미래기술 확보 및 차세대 시장선도 제품개발을 통하여 신사업 기회를 발굴/육성함
기초소재	종합 촉매, 공정 기술을 기반으로 한 ABS, EP, PO, SAP, 합성고무 등 소재 개발 및 공정개선 연구	ABS, 합성고무, SAP 등 다양한 중합기술을 이용한 기능성 소재 연구를 수행하며 LG화학 고유의 촉매설계 및 합성 역량을 바탕으로 한 다양한 PO제품 개발과 세계 최고 수준의 NCC 에너지 효율을 확보한 공정 역량으로 석유화학 기반의 기초소재분야에서 시장을 선도하고 있음. 또한 CNT, 정/정착소재, 고기능 세라믹을 비롯한 신소재 분야에 대한 연구를 함께 진행 함
2차 전지	2차 전지 4대 소재, Mobile용 전지, 자동차용 전지, 전력저장용 전지	고용량/고출력/장수명/고안전성의 차별화된 전지 소재 개발, 효율적인 전지 제어를 위한 전장 및 BMS 개발, 모듈/팩의 경건 설계, 생산성 향상을 위한 공정 기술 연구를 기반으로 IT, 자동차, 전력저장 등 차세대 에너지 분야의 시장을 선도하기 위한 종합적인 개발 활동을 진행함
정보전자소재	디스플레이, 반도체, 친환경 / 에너지 소재 및 공정	고분자, 유/무기 Hybrid 소재 및 정 · 접착, 코팅 박막증착, 필름가공, 액정용융, 광설계 등 핵심기술을 기반으로 편광판, 고기능 필름, Glass 등 디스플레이소재, DAF, CCL 등 반도체 소재 및 RO 필터 등 친환경 소재 분야에서 시장선도를 위해 차별화 제품 및 공정기술 개발을 진행함
재료	차세대 Display 재료, 그린에너지 및 머티형 자동차용 정단 소재	Display소재 및 2차 전지 소재, 차세대 자동차용 접착 소재 등 핵심 재료 개발과 Bulk 세라믹 등 무기 소재 분야에서 원천 기술 확보를 목표로 연구 활동을 진행함
생명과학	당뇨 및 면역질환, 면역 · 항염 분야의 합성 및 바이오의약품, 백신 및 진단의약품	당뇨 및 면역질환, 면역 · 항염 분야 신약 개발 및 신규 Technology 확보를 위한 연구를 진행함. 바이오의약품(Biosimilar, HA제품, 성장호르몬제 등), 합성의약품(당뇨 기반 복합제 등) 및 Global 백신 및 진단의약품의 연구개발을 진행함.

LG화학 비전

To Be a Global Leader

차별화된 소재와 솔루션으로 고객과 함께 성장하는 세계적 기업

국내사업장


CJ CHEILJEDANG
GREAT
SPACE HOLDS
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THOUGHTS
CJ BLOSSOM PARK
미래를 위한 핵심 R&D 역량이 모인 통합연구소
CJ Blossom Park는 CJ 핵심 R&D 분야인 소재, 생물자원, 바이오, 식품영역을 통합하여 설립 되었습니다. R&D 분야에 있어 CJ의 성장을 지속하게 할 Brain Hub로서, 유사 사업군 간 강력한 시너지를 이끌어내며 지금까지 볼 수 없었던 ONLYONE 정신을 실천하고 있습니다. 최고의 인프라, Global Top Class의 R&D 인재, 혁신적 기술력을 바탕으로 ONLYONE Technology 기반의 혁신제품 개발을 통해 세상에 없던 새로움을 창조하는 글로벌 컴퍼니, 그 시작점에 CJ Blossom Park가 있습니다.
Credit to Christopher Barret Photography


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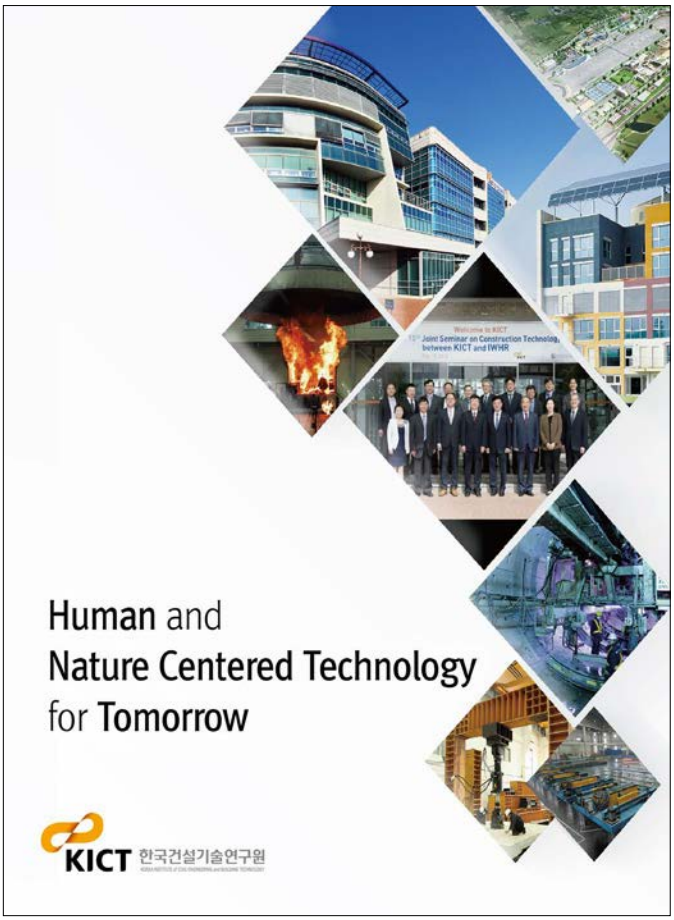
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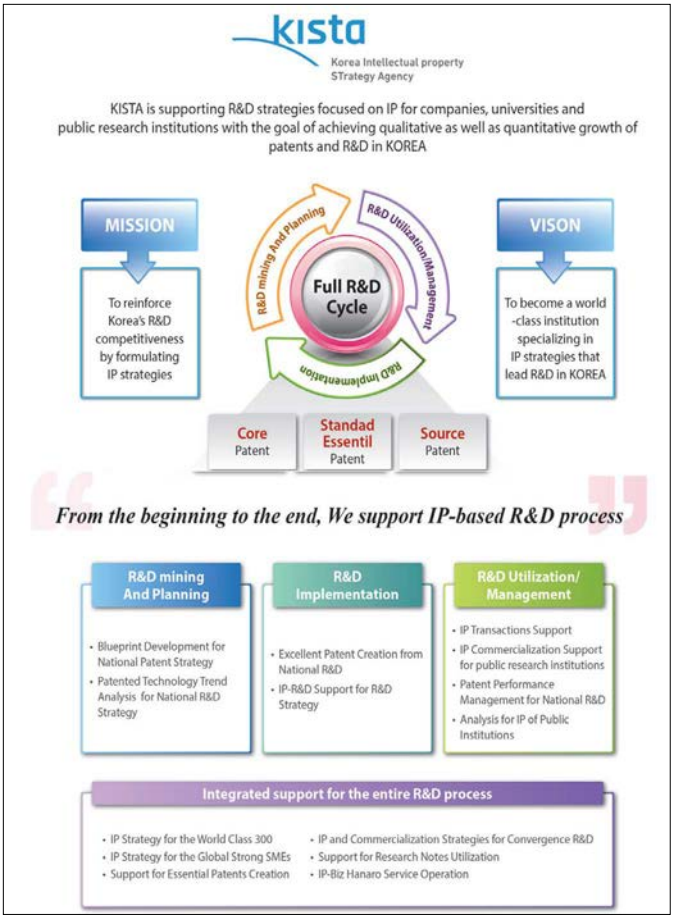
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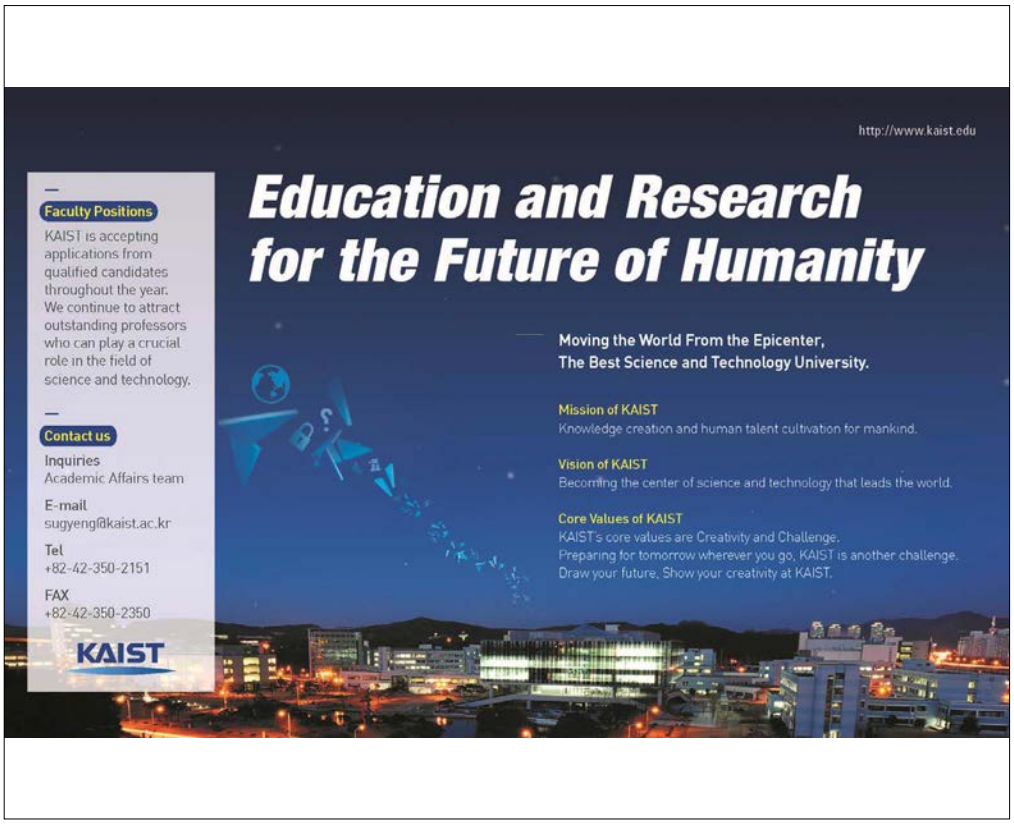
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Awarded as Entrepreneur of the Year by Maekyung Newspaper Media Group (2012)
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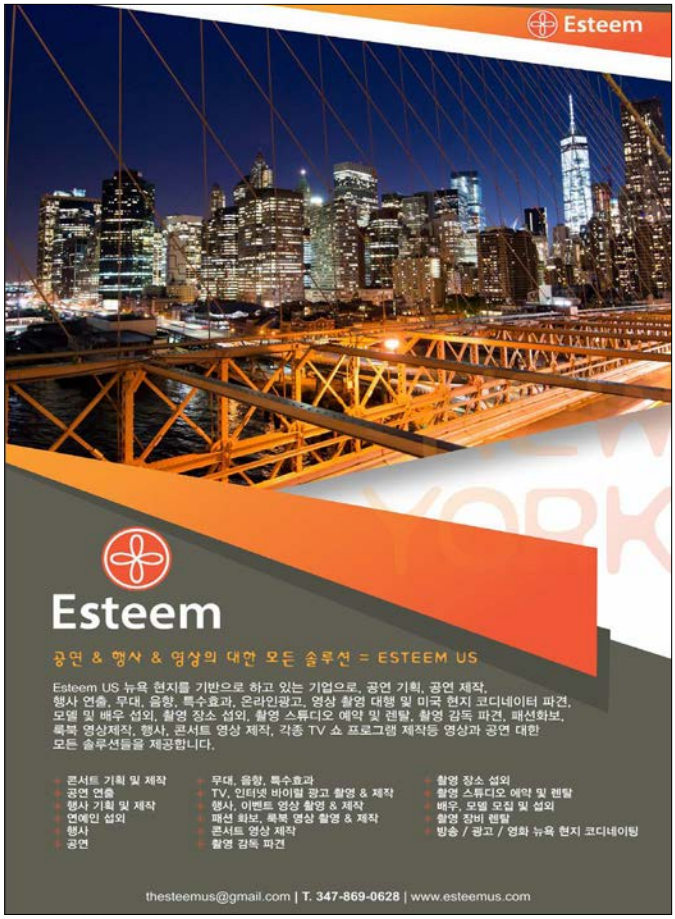
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