Northwestern University MSE Awards Ceremony
Distinguished Career Achievement Award Acceptance Speech

(May 16, 2019, NU Allen Center)

Good evening, respected professors, colleagues, and friends.

It is my great pleasure and honor to receive the Distinguished Career Achievement Award tonight. I never imagined that I would receive this honorable award when I graduated from this incredible academic institution in 1984.

Returning to campus 35 years after my graduation, I am overwhelmed and humbled to receive this award. I am deeply grateful to the Department Chair, Prof. Eric Luijten, and the selection committee for this honor.

I would like to express my deepest gratitude to my Ph.D. advisor, the late Prof. John Hilliard, who trained me to become a professional materials scientist. I am also very grateful to the respected professors who taught me during my studies at NU, in particular, Prof. John Ketterson, Prof. Yip-Wah Chung, and Prof. Bruce Wessels.

I should mention that they wrote me very nice recommendation letters when I applied for a KAIST faculty position 30 years ago. Without their recommendation letters, I would not have gotten a faculty position at KAIST.

Last but least, I would like to express my deep gratitude to my wife who always supports and helps me.

These photos remind some memories at NU, 35 years ago. Really, time flies like an arrow! Looking back at the years spent on my Ph.D. at NU, it was one of the toughest times in my life. However, it was valuable opportunity to develop as a professional scientist for the future.

The intensive study and work of about 100 hours per week required during the three and half years at NU made me academically mature but also mentally strong, cultivating a Can-Do-Spirit as well as Challenging Spirit.

In particular, I was so lucky to have Prof. Hilliard as a Ph.D. thesis advisor. He was a great scholar equipped with both knowledge and insight. He was also a wonderful mentor who enjoyed discussions with his students and he had an open mind that was willing to listen to his students' ideas.

For my Ph.D. research, I was initially assigned to work on Pb-Bi compositionally modulated thin films. After experimenting for almost a year, I found that it was impossible to fabricate the compositionally modulated structure of the Pb-Bi system because of high inter-diffusivity.

Instead, I proposed a compositionally modulated PbTe-Bi system to Prof. Hilliard. He accepted my idea and allowed me to work on that system, which provided me a great opportunity to trailblaze a semiconductor-semimetal compositionally modulated system. Without his open mind, I would not have successfully finished my Ph.D. degree and, obviously, I would not be here today.

Now I am very fortunate to hold the title of the first KAIST alumnus president, in addition to being a proud NU alumnus, so I would like to take this opportunity to tell you about the unique role of KAIST in Korea.

In the 1950s, our country was left totally ravaged by the Korean War. General Arthur MacArthur, the commander of the UN Forces, said, "It will take at least 100 years to rebuild this country."

In the 1960s, Korea was still one of the poorest countries in the world with a per capita GDP less than 100 US dollars. Our future seemed hopeless.

But a half-century later, Korea witnessed the Miracle on the Han River, and joined the ranks of the world's top 10 economies.

During that half century, Korea's GDP increased 739 times, exports 10,700 times, and per capita GDP 377 times. It is now ranked 12th in the world for SCI papers, and 4th in terms of US patents.

So, the question is "What allowed Korea to achieve this phenomenal growth in such a short period?" Many people say that if not for KAIST, Korea would not exist as it does today.

KAIST has been a beacon of hope to the Korean people for the rapid national development. With its establishment in 1971, KAIST accelerated the industrialization of Korea by fostering talents in science and technology and alleviating brain drain, a severe problem at that time.

Innovative plans were made to retain elite students in Korea. KAIST provided a special benefits package for its students including a full scholarship, free room and board, a monthly allowance, and waiving their military obligation. KAIST also recruited the best faculty from home and abroad, offering salaries three times higher than other Korean universities.

KAIST has fulfilled its mission passionately and faithfully, thus far producing over 64,000 graduates, including 13,000 doctoral degree holders. Our alumni have played pivotal roles in Korea's remarkable economic growth as well as the advancement of science and technology over the past half-century.

For instance, 20% of S&E faculty in the Korean universities are KAIST graduates. In the semiconductor industry, which is dominating the global market, one in every four Ph.D.s is a KAIST graduate.

KAIST now has earned a global reputation as a world-class university. Thomson Reuters ranked KAIST as the sixth most innovative university in the world and the top in the Asia-Pacific region for three consecutive years from 2016.

USAID, which offered a six-million US dollar loan to KAIST 50 years ago, stated that "KAIST provides an example of how Korea, once a recipient of international aid, has become a leader of science and technology innovation."

Many developing countries are benchmarking KAIST as their role model. For example, the Kenyan government recognized KAIST as the driving force behind Korea's astonishing growth, and has authorized the establishment of Kenya-KAIST under Kenya Vision 2030, its roadmap for national economic development. We had a kickoff ceremony in Nairobi last February. It demonstrates a shining example of university innovation and impact at the national level moving forward to a global one.

KAIST does not want to be satisfied with its past successes. We will continue to move toward a new vision for our next chapter. For that, we set up Vision 2031, for the year that will mark the 60th anniversary of KAIST.

Our new vision is to become a Global Value-Creative Leading University creating academic value, technological value, economic value, and eventually creating social value for the prosperity and happiness of humankind in the era of the 4th IR.

As the first alumnus president, I have a mission to achieve this new vision, together with all our passionate professors, students, and staff members.

For realizing the new vision, international collaborations with a world-leading university like NU are a must. In this regard, KAIST would like to collaborate more closely with NU for our mutual benefit, examples of this being the on-going bilateral workshop on the materials science and the dual degree program in the Masters of Intellectual Property.

Now, I would like to close my speech here by once again expressing my deep gratitude to all my professors and friends attending the awards ceremony tonight.

Thank you all very much.

Sung-Chul Shin
President, KAIST