President's Commencement Address (December, 2023)

It is with immense pleasure that I extend my warmest congratulations to each and every one of you who has received master's or doctoral degrees today. Your everyday effort that has led you to this commencement ceremony is truly an accomplishment of hard work and worthy of praise. I hope you will be proud of yourselves and keep the joy of this day in your hearts.

I would also like to extend my heartfelt congratulations to your family and friends, as well as your professors, who have been diligently guiding you through your studies. It must be a great joy for all who have supported your studies at NAIST in various ways.

Having completed your study at NAIST, you now know that training in graduate school is very different from what you received as an undergraduate. Graduate education is centered around research training, where you work on your own research project and compile a dissertation. Here, I have a question for you. Has your image of "scientific research" changed by experiencing your thesis research and observing professional researchers such as your professors?

In the stereotypical image of research for the public, scientific insight occurs all of a sudden, for example, when a scientist sees an apple falling from a tree. A moment of eureka is often illustrated as a light bulb being lit in the head of a lone scientist. But now you probably understand that research is a time-consuming process usually carried out by the collaboration of many scientists over the years.

Research is teamwork. You share your initial idea or finding with peers, who often disagree with you, so that you can make adjustments. Your conference presentation and paper publication would lead to even more scrutinization by many researchers, allowing further refinements. Eventually, your idea may become a long-standing theory, or your finding may become "knowledge." Such a scientific process could take hundreds of years and involve numerous researchers, with the heliocentric theory being a famous example.

Why do scientists need to work in teams? Herbert Simon was an American political scientist who was awarded the Nobel Prize in Economics in 1978. In his book titled *Administrative Behavior*, he coined the famous term "bounded rationality" for the idea that our rationality in making decisions is limited by what we have, such as our cognitive capability and available time. Without a doubt, individual scientists also have only "bounded rationality," rather than "perfect rationality" necessary to reach objective truth instantly. That is because what we think and see is personal, being influenced by our backgrounds, experiences, education, and state of mind. Only

researchers' collective wisdom and passion can attain scientific consensus, which is often called "knowledge."

None of our current challenges, such as climate changes, pandemics, and SDGs, can be addressed by a single expertise. They demand the close collaboration of diverse researchers and global citizens, leading to recent attention to "intellectual humility." The concept of intellectual humility is nothing new. Its origin can be referred to the famous saying by the ancient Greek philosopher Socrates, "I know that I know nothing." Intellectual humility is the quality of accepting the limitations of one's beliefs and, therefore, recognizing one's "bounded rationality." Embracing our fallibility makes us open to the perspectives of others and ready for collaboration. Only by recognizing that our comprehension might be flawed or limited can we listen to others and wade into the unknown to make discoveries and create innovations.

The graduate degrees you have been awarded today are remarkable achievements you should be proud of. On the other hand, academic arrogance is what we should always be afraid of, and "intellectual humility" is the last item that I would like you to keep in mind on this graduation day. It is a skill or habit essential for leaders who tackle global challenges with integrated efforts of diverse members of society. Indeed, there is an excellent proverb that the Japanese food culture has conceived for us to remember "intellectual humility":
「実るほど首を垂れる稲穂かな」.
Its literal translation may be, "The more rice stalks bear, the deeper they bow." You may know a beautiful English saying with a similar meaning, "The more noble, the more humble," which is probably easier to remember.

Before closing, I would like to congratulate all of you again and remind you that you are part of the NAIST community even after graduation. The NAIST Alums Association is a global network of over 10,000 alums, and I encourage you to take advantage of it and keep in touch with NAIST. With great pride, we will enjoy learning about your achievements and accomplishments to come.

Go now and outgrow your limits!