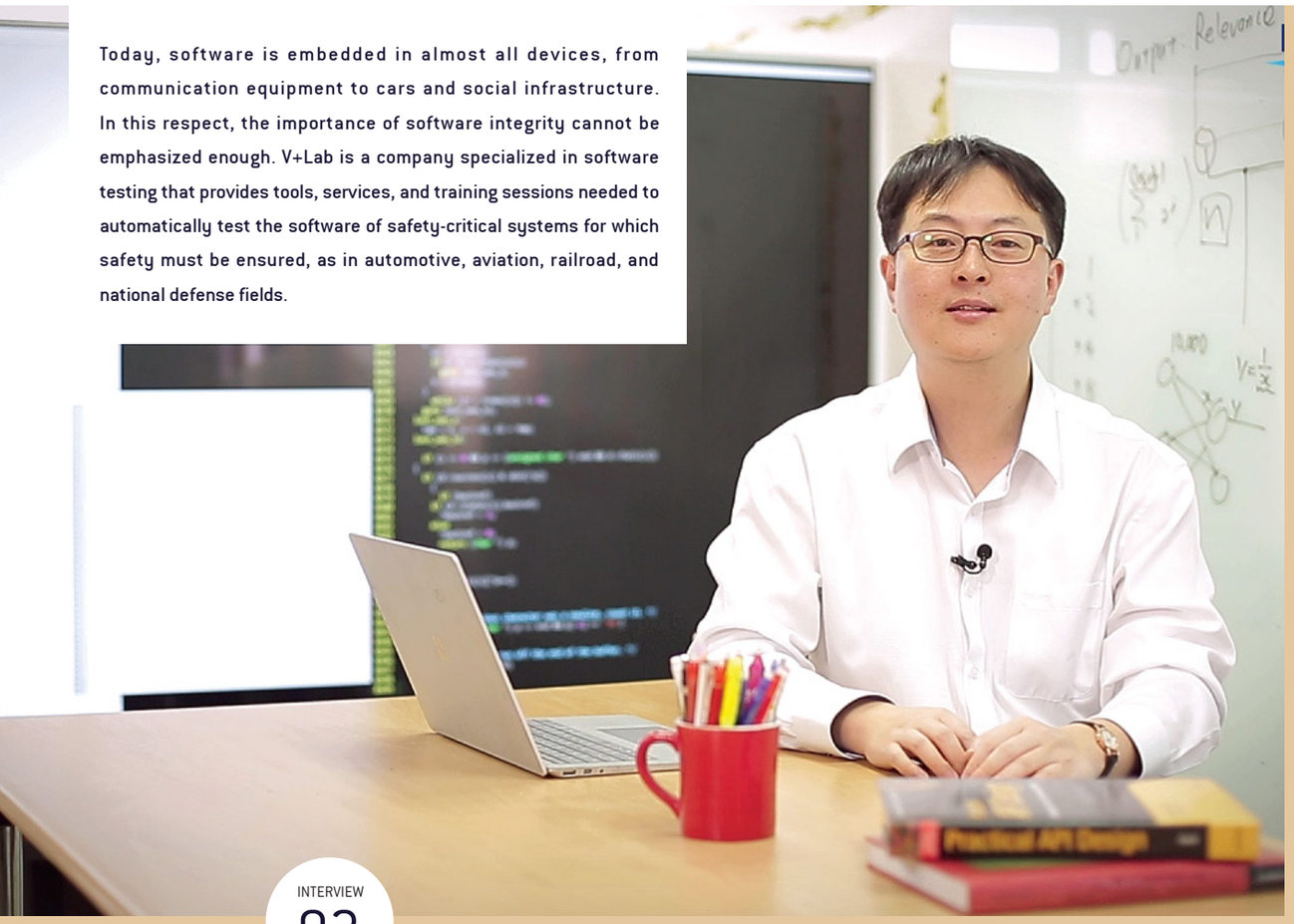
Today, software is embedded in almost all devices, from communication equipment to cars and social infrastructure. In this respect, the importance of software integrity cannot be emphasized enough. V+Lab is a company specialized in software testing that provides tools, services, and training sessions needed to automatically test the software of safety-critical systems for which safety must be ensured, as in automotive, aviation, railroad, and national defense fields.



INTERVIEW
03

Moonzoo Kim

'V+Lab', an AI-based, low-cost, high-efficiency automatic SW testing company, professor at the School of Computing

For almost 15 years, since 2006, Professor Moonzoo Kim has been devoted to research and development at KAIST while also having transferred the technologies that he has studied to the industrial sector. In the process, he has attempted to identify their needs and make technological improvements to fulfill them and further start a business by gathering people with common goals. He has consistently transferred his world-level technologies and expertise to domestic businesses. We met with Professor Kim, who is now leading a company that has proved to be an exemplary case of university-industry collaboration.

What made you start a business?

With the size and complexity of software as a core part of the fourth industrial revolution increasing from day to day, major accidents related to software have consistently occurred, such as unintended high-speed acceleration in Toyotas and the Boeing 737 Max crash.

Labor-intensive, old-fashioned software testing practices in the industrial sector (software of millions of lines of code is tested line by line manually by human workers) have led to reduced effectiveness in software error detection, and thus software testing requires a large amount of labor cost, thereby resulting in increased product prices, prolonged software development periods, and reduced product competitiveness.

My research has been focusing on automatic software testing for 20 years. As a result, I have developed automatic software testing technology that leads the world, and the practicality of the technology has been verified over the period of more than ten years by applying it to various companies, such as Samsung, LG, Hyundai Motor Company, Hyundai Mobis, and LIG Nex1. These achievements gave me the confidence that, with this unrivaled technology in our hands, we would be able to succeed in the software testing market. This was when I decided to start a business.

How is the automatic software testing market doing now? Tell us about the difficulties you're having in running a business.

Automatic software testing has a high potential for fast growth given the exponential growth of the software market (e.g., the size of the global automatic automotive software testing tool market amounts to 8 trillion won as of 2020 and is expected to increase to 11 trillion won by 2030), but the market has a very high entry barrier and thus is still considered a blue ocean market because it is open only to those equipped with automatic analysis technology to analyze complex software code.

Since early 2020, automotive makers as V+Lab's primary clients have tightened their belt by laying off employees and stopping all new investments with the influence of COVID-19, and thus our company has recorded very low revenues accordingly. In an effort to overcome such unexpected difficulties, we have been expanding the scope of clients to include not only private-sector companies but also national research institutes that are less affected by economic conditions, such as ETRI and NSRI. With good comments about the efficacy of our products supplied to those research institutes spreading by word of mouth, we have been receiving additional orders. Likewise, we are doing our best to get through this difficult time.

What visions does V+Lab have, and what attributes and talents are you looking for in an employee?

Currently, we are under discussion with BMW Korea's R&D Center regarding technology transfer and investment. According to V+Lab's roadmap, we have been preparing to enter the Japanese market in 2022. To this end, we are planning to receive Series A investment in 2021 in order to hire advanced development and sales support staff.

For your reference, DiffBlue, an automatic software testing service startup established by Professor Daniel Kroening at Oxford University, received an investment of 26 billion won from Goldman Sachs in 2017. V+Lab has developed concolic testing technology, which is an even more advanced technology compared to that of DiffBlue, and the practicability of the technology has been verified through a number of university-industry collaboration projects, including the 2017 MOBIS MAIST university-industry collaboration project where a two-fold improvement in software testing efficiency was demonstrated in practice. Based on these achievements, we are planning to find investors who intend to share the visions of V+Lab.

Here, a small number of people are required to deal with high-intensity work at a rapid pace, and thus those with consistent passion and lots of energy are favored. Also, given ever-changing business environments (who would have expected that this COVID-19 would change the world?), positive thinking is also an important attribute because we need to keep overcoming such unexpected challenges and difficulties.

Would you describe a day in the life of an entrepreneur?

Given that advanced software technology is what makes V+Lab competitive, I spend much of my time in research activities. What's different since I started a business is that I have a lot more work to do during the work hours and thus have to use early morning hours to give myself time to reflect on the business direction and also meditate. Also, to build the physical strength needed to handle a lot of work given to me, I keep exercising consistently using a chinning dipping machine in my office.

What is your final destination?

I want to grow V+Lab into a high-profit business based on unrivaled technology. In fact, it is really regretful that despite their excellent research performance and achievements during their doctoral program, many graduates from the School of Computing of KAIST find a job and are then assigned to development tasks where they are not allowed to fully leverage their advanced skills and techniques, thereby ending up with losing their own competitive edge. I want to turn our company into an advanced technology-driven software firm that creates a virtuous cycle where hard-working, advanced software researchers are highly rewarded, and, in turn, they contribute to increasing the overall technological competitiveness of the company, and the enhanced competitiveness and productivity leads to improved profits in the market. In short, I want V+Lab to be proof that advanced software technology makes money.

Do you have anything to say to pre-entrepreneurs?

Starting and running a business is very difficult and demanding, to be sure, but it is extremely fun. The job of students or employees is to handle what they are assigned within a well-established system, but entrepreneurs do more creative work while embracing various things they encounter around the world and continuing to learn and create new things. There are no better jobs in the world than starting and running a business if you want to contribute to making the world a better place by developing and leveraging your ability 200 percent. If you have competitive items in your hands or have people stand by you who are willing to work together to lay their hands on some promising items, I strongly recommend that you start a business.