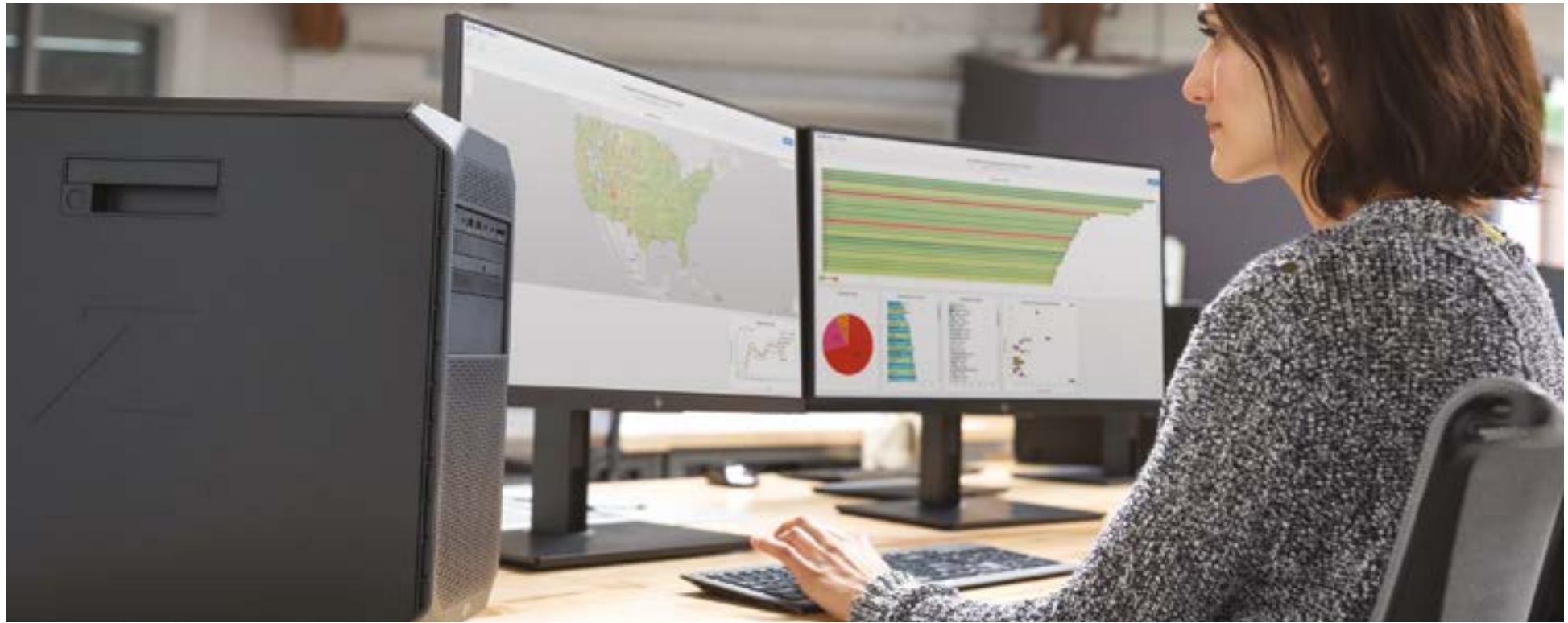




CHANRAN KIM: AMPLIFYING KNOWLEDGE BY SHARING IT

Z by HP enables data scientist to discover and disseminate insights faster, to help tackle wide-ranging challenges





Data scientist Chanran Kim thrives on competition. But he likes to share even more.

As a child growing up in South Korea, video games were his obsession, and he wanted to win. That's what originally drew him to Kaggle, the world's largest online data science community. Kim explains, "I was working on my Master's in Computer Software at Hanyang University, and it was in the AV/VR lab where I first heard about Kaggle. I fell in love. The competitions remind me of gaming, but with knowledge sharing so that everyone can learn and benefit—that is where the tangible value happens. Of course, people

compete to win, but many also reveal their code, to expand understanding and help others do so as well."

With three degrees under his belt, Kim began his career in data science and AI. Today, he is part of the Vision AI Generation Team at NCSOFT, one of the leading gaming publishers in the world. There, he uses a class of algorithms known as generative adversarial networks (GANs) to enable a computer to study a library of images and create new art based on what it has studied. This delivers fresh images to game developers that are consistent with existing works.

AT A GLANCE:

CHANRAN KIM, SEOUL, SOUTH KOREA

- Member of the Vision AI Generation Team at NCSoft
- Founder of Pseudo Labs
- Sejong University, Bachelor of Science, Physics
- Sejong University, Bachelor of Engineering, Computer Engineering
- Hanyang University, Master's degree, Computer Software
- Holds three patents, 18 publications and is a published author
- Enjoys photography, playing bass guitar, and watching Premier League soccer matches



As a Z by HP Global Data Science Ambassador, Chanran Kim's content is sponsored and he was provided with HP products.

Kim remains very active on Kaggle where he is a Notebooks Master and a Competitions Expert. He believes Kaggle sets an excellent example for how businesses should operate. "In the enterprise, it's difficult to fairly evaluate work; the metrics are usually set by the company and easily modified to fit. With Kaggle competitions, the metrics are set by the sponsors and can't be modified. Truly, the best ideas win," he explains.

Sharing and collaboration further the learning of the community

Kim also believes that the collaboration that is the hallmark of Kaggle is invaluable, bringing together amateurs and experts from across the

security and national security. The goal of the contest was to create an efficient and reliable method to detect secret data hidden within innocuous-seeming digital images. He says, "I had researched steganography during my master's course and then, years later engaged on this Kaggle competition where I had the honor of competing against Jessica Fridrich, Distinguished Professor at SUNY Binghamton and an expert in the field of steganography." He won the silver medal as a bonus!

During the COVID-19 pandemic, inspired by the community on Kaggle, Kim founded Pseudo Lab, a platform for South Koreans with an interest in data science, machine

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Chanran Kim, Z by HP & NVIDIA® Data Science Global Ambassador

globe to engage one another around common interests. He points to a competition focused on steganography—the practice of hiding a secret message inside images—with profound implications for many fields, including cyber

learning and deep learning, and focused on sharing knowledge. Here, he leads free deep learning study groups and open-source projects available to his roughly 200 members, and he will host his second annual conference

SOLUTION HIGHLIGHTS:

HP Z4 DESKTOP WORKSTATION

- Intel® Xeon® 2295 3 GHz 18C – CPU
- NVIDIA® Quadro® RTX 6000 – GPU
- 128 GB (4 x 32 GB) 2933
- Z by HP Data Science Software Stack

Z38C DISPLAY

- 37.5-inch diagonal curve
- 3840 X 1600 at 60 Hz resolution

HP ZBOOK STUDIO G7

- Approx: 4 lbs/2 Kilos
- i9 – 10885H processor
- 32GB RAM
- NVIDIA® RTX 5000 (16 GB VRAM)
- 15.6-inch display
- Ubuntu 20.04
- Z by HP Data Science Software Stack

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Software Stack
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in 2021. Kim has published 14 studies as a result of work done on Pseudo Lab.

Kim has also published a book on transfer learning, the reuse of a pre-trained model on a new problem, and often gives lectures on the topic. Transfer learning is extremely popular in deep learning because it can train deep neural networks with comparatively little data.

Clearly not one to let any grass grow under him, Kim has also produced 18 publications and holds three patents supporting steganography technology advancements in the national defense arena.

A rising tide lifts every boat

Steganography. Natural Language Processing. Machine Learning. Deep Learning. As data scientists tackle these complex and evolving fields, they can only share findings as rapidly as they can generate them. And expertise is only one half of the equation. Kim says, “It’s a mistake to think that you can get to a solution with just ability or just the right equipment. The truth is, you must have both talent and the right tools to succeed.”

As a Z by HP & NVIDIA® Data Science Global Ambassador, Kim uses the HP Z4 Desktop Workstation with an HP Z38c LED monitor, and the HP ZBook Studio Mobile Workstation, giving him the high-caliber, data science-built equipment that propels him to insights faster—so he can communicate them out to his communities.

Kim knew about HP, of course, but the company’s ambitions to accelerate data science workflows, complement and enhance



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cloud infrastructure, and enable faster access to critical data science tools were a surprise to him. Becoming an Ambassador broadened his perceptions of HP.

He appreciates the speed, power, and lack of limitations that the GPUs in the HP Z4 Desktop Workstation deliver. He says, "Each GPU has more than 5,000 cores, so it's extremely fast. It took me 35 percent less time to train

an epoch on the Z4 than on Google CoLab. On Kaggle, training 20 epochs took seven hours, and the Z4 cuts that nearly in half, to merely four hours." This means Kim can run more experiments, and run them faster, enabling him to distribute findings more quickly. He says the Z4 could deliver substantial benefits for him at work, too. "The Z4 could help me train a model that produces high-resolution images for artists

faster, enhancing their productivity and helping the company deliver games to market sooner," he explains.

Kim finds the pre-loaded data science software stack incredibly helpful, allowing him to get straight to work without any hassle or lost time. "I used to build my own desktops but always ran into dependency problems. With the Z4, there is no need to install anything—

simply plug it in and start training," he says.

More power opens the door to more possibilities

The Z4 has changed his perceptions about what a computer can be. Previously, he thought a good CPU was sufficient; now he realizes the bottlenecks, limitations and lags that approach can invite. With Z by HP, there

KAGGLE: LEARN, COMPETE, CHANGE THE WORLD

- Over 6 million registered Kagglers solve data science problems, gain access to powerful tools and resources, and compete for prizes.
- There are five tiers: Novice, Contributor, Expert, Master, and Grandmaster. Currently, there are 211 Grandmasters.
- Kaggle has run hundreds of competitions, from improving gesture recognition to improving the search for the Higgs boson at CERN. Competitions have resulted in successful projects including furthering HIV research and traffic forecasting. The learnings that result from the competitions and shared on Kaggle are being transferred into enterprise workflows to transform how business works.

Visit www.kaggle.com to learn more.

THE POWER OF Z:

35 percent less time to train an epoch on the Z4 than on Google CoLab

Cut training time nearly in half

Faster delivery of assets to businesses and products to market

Ability to handle massive data sets with ease

Reliable, well-designed, high-quality components

Confidence of integrated security features

are no bottlenecks, no constraints on how many experiments he can run, and he can wrestle massive data sets with ease. This is particularly important for Kim's areas of interests such as Computer Vision and Natural Language Processing which inherently use super-sized data sets. He is also interested in learning more about neural architecture search—a technique for automating the design of artificial neural networks—and hyperparameter search—the process of identifying the best parameters to fine-tune learning algorithms in order to obtain the best results.

Although the pandemic has severely limited his ability to get out and about, Kim does enjoy his compact but mighty HP ZBook Studio, using it to run experiments, develop baseline code and enabling him to take his work with him. He says, "The ZBook is powerful like the Z4 workstation, but it's small and quiet. It's convenient and well-designed. Most importantly, I can rely on it."

Kim also appreciates the confidence that the HP Z solutions provide him, saying, "Working in the cloud can introduce security concerns. But the Z by HP is the world's most

secure workstation, so there are no security concerns at all."

Sharing the wealth

Kim's vision for data science? Personal assistants for everyone. He imagines a world where each person has an AI system to support and enhance our days. Kim says, "I'm thinking of Jarvis from the Iron Man movies, Tony Stark's right-hand man who anticipates what Tony needs and provides real-time analysis and advice."

He points to companies and brands which today are utilizing data to serve up ads that may be of interest to visitors based on past searches and views. He predicts assistants who move beyond today's Siri and Alexa to source, analyze, and extract insights from data and then proactively serve up actionable information, as well as learning to understand us more intimately over time. They will be able to support us equally well both at play and at work, seamlessly adapting to any roles and environments where we find ourselves. They will enable us to live healthier, safer, more comfortable, and more fulfilling lives. When data scientists like Kim can accelerate their work and generously share their findings, that future may be closer than it seems.



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