Case Study

Computer Vision AI Intel® Geti™ Platform



Computer Vision Al Education and Deployment Leaps Forward with a New Approach from ITis and Intel

Intel and ITis speed Al project development with a sophisticated Al education and training platform.



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— Julia Bae

A New Era in Edge AI is Emerging

Computer vision is revolutionizing the way companies manufacture products and deliver services. This field of artificial intelligence (AI) delivers remarkable benefits, including the ability to improve productivity, boost quality, and lower costs.

But these gains aren't easily achieved. While computer vision and other forms of AI have the potential to transform a wide range of processes across many industries, it can be incredibly challenging to integrate these technologies into real-world applications.

One of the more formidable roadblocks is developing internal expertise and equipping people with the hands-on skills to tackle complex data science tasks. In fact, a study conducted by the Korea Information Society found that 34% of respondents cited staffing as a significant challenge in developing AI systems.

ITis Co., Ltd. is a pioneer in the AI education space, offering a revolutionary experiential training course toolkit, Edge AI Vision Training Kit (EVAT), that helps organizations reach their transformation goals. With EVAT, ITis provides comprehensive practical training on AI system development in a single day. The solution consists of a training toolkit for visual data capture, an Intel-based edge device for collecting and transmitting data, and an Intel® Xeon® processor-based server with the Intel® Geti™ platform for AI model development. It is the first comprehensive AI training kit for individuals, students, and organizations charged with building and deploying advanced AI models. The platform supports various roles, including data analysts, domain experts, data scientists, DevOps teams, and IT specialists.

The EVAT advanced training kit is built atop state-of-the-art Intel technology, including the Intel Geti platform and the Intel® Distribution of OpenVINO™ toolkit, and includes a USB camera for collecting visual data. The result is an AI skill development platform that revolutionizes how organizations solve the skill gap for their AI projects. And at the same time, its workforce develops edge AI applications for real-world implementation while learning on the job.

The Hurdles to Successful AI Learning

The first step to successfully implementing computer vision and AI is to embed the best practices in AI training and development into an organization's operations. This includes both training people and training the AI model.

However, several challenges can prevent teams from taking this all-important step. For one, data science teams at most organizations tend to be in high

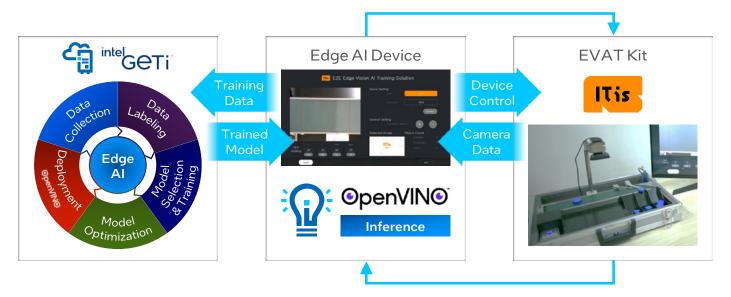


Figure 1. The IT is EVAT end-to-end solution is made up of a training toolkit for capturing visual data, an Intel-based edge device for collecting and transmitting data, and an Intel® Xeon® processor-based server with the Intel® Geti™ platform for data labeling, model training, model optimization, and retraining.

demand and working at full capacity.¹ Furthermore, prioritization challenges can push more explorative projects to the back burner.

Not surprisingly, leveraging outside expertise, such as consultants and other specialized experts, to help develop Al algorithms can push up costs and adds to security and data privacy challenges. These outside groups also tend to focus narrowly on domain-specific issues rather than viewing a project through the broader lens of a business initiative.

As a result, many organizations prefer to approach AI model development in-house. However, they may immediately run into skill and knowledge gaps—particularly when it comes to scaling up a project and building it into day-to-day operations. For instance, preparing teams to be effective in developing AI models can consume valuable time, pulling staff away from their regular work. Furthermore, the task of labeling images without knowing how much data will be required to produce a usable AI model can increase the time burden of AI projects.

Improving the AI development pipeline is critical for organizations looking to take manufacturing into the realm of Industry 4.0 and reap the full benefits of AI and computer vision. Organizations must enhance their teaching methods to elevate internal development skills and reduce the complexity and costs associated with AI projects. When internal developers and domain experts have the skills, tools, and confidence in AI modeling, they can develop AI models better and faster, resulting in a quicker return on investment for their organizations.

This concept is at the center of EVAT's business model. "Education and training serve as a foundation for success in computer vision and AI," says Julia Bae, CEO of ITis. "It is important to break through time and cost constraints and make AI training accessible to those outside the data science and AI fields. It's a formula for success in artificial intelligence development."

ITis and Intel Join Forces to Accelerate Al Education, Training, and Development

ITis understands that AI development is a competitive differentiator for organizations. The company has collaborative relationships with industry-leading companies, including Intel, SAP, Microsoft, and Fujifilm. It also works with government agencies, educational institutions, and others to build advanced digital frameworks. ITis specializes in rapid education and training, including in areas such as smart factories and artificial intelligence (AI).

An efficient and effective AI education approach can allow manufacturing companies to quickly ramp up edge AI and computer vision programs without sacrificing the quality of training and actual model development. The EVAT platform takes advantage of the synergies that the Intel® Geti™ platform and OpenVINO™ toolkit deliver with Intel's proprietary technology stack. The Intel Geti platform can enable teams to build AI models rapidly by training models on a smaller volume of data. The optimizations and quantifications with OpenVINO toolkit can enhance model performance on Intel silicon. The ITis and Intel collaboration can help organizations to quickly develop and deploy edge AI solutions.

How It Works

ITis worked closely with Intel to combine the complementary capabilities of the Intel Geti software platform, OpenVINO toolkit, and the ITis toolkits. The result, EVAT, is a sophisticated tool that supports real-time, customized AI education and development. This toolkit allows different groups involved in AI development to learn everything they need to know about AI more intuitively, meaningfully, and effectively.

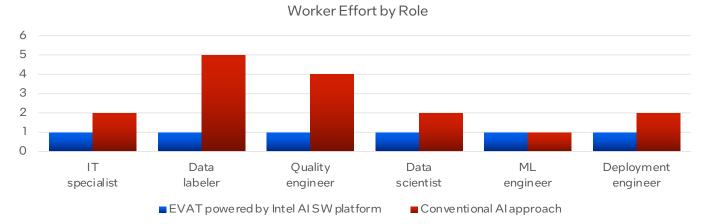


Figure 2. Typical results achieved with the ITis EVAT solution include savings in work hours and human resources.²

At the foundation of the ITis EVAT platform is Intel technology. This includes the Intel Geti platform, a software solution that allows teams to develop AI models rapidly. It reduces the complexity associated with constructing advanced CV AI—thus unlocking competitive and cost gains. The Intel Geti platform includes important features such as guided annotations, active model training functionality, strong API support, task chaining, and built-in optimizations for OpenVINO toolkit, to enable teams to collaborate effectively and accelerate their AI model development.

Furthermore, the Intel® Distribution of OpenVINO™ toolkit delivers state-of-the-art built-in deep learning reference algorithms for the EVAT solution. This cutting-edge framework makes it easier for engineers and developers to begin innovating rapidly. It supports high-performance deep learning, streamlines development processes, and enables write once, deploy everywhere technology that supports a variety of processors and accelerators, including CPUs, GPUs, and VPUs.

The EVAT Solution Advantages

For organizations, the practical outcome is an ability to deliver an on-the-job (OTJ) learning experience that maximizes retention while minimizing the time and cost required to get teams up to speed. In fact, the EVAT solution delivers learning on day one and helps teams build AI models quickly. EVAT accomplishes this by using camera vision to assist in data collection. Trainees then label and train the system with actual components. No less crucial: "Corporate students can use small data sets from their factory, increasing the student's ability to recognize desired outcomes and be productive sooner," Bae says.

In fact, with EVAT, organizations are able to identify the best model for their environment and optimize it quickly. Developers simply deploy their trained AI model to an Intel NUC edge device that handles inferencing and controls necessary functions for the relevant actions.

Essentially, the solution serves as a shortcut for what can be a long and complicated supervised training process. In addition, it supports real-time on-site customization.

The bottom line? "The technology framework represents a more straightforward and effective way to train teams and build a high-quality project quickly—and without many of the typical obstacles," Bae explains.

- On the Job (OTJ) Learning Experience. EVAT makes
 Al education more efficient and cost-effective because
 meaningful work can be completed throughout the
 learning process, helping teams get up to speed without
 losing valuable productive time.
- Value. Powered by the Intel Geti platform, EVAT uses a smaller and contextually relevant image base. In many cases, fewer than 100 images are necessary to build a computer vision model.²
- Speed to Results. Trainees can view their results immediately and see how changes impact—and improve—AI probabilities and actual outcomes. This may help engage and motivate a workforce.
- Flexibility. Trainees can continue adding relevant data to improve their AI models and improve system performance.
- Agility. Cross-functional teams can work collaboratively and increase efficiency as they address different stages of building a workable computer vision AI solution.

All of this adds up to a more effective way to train teams and get projects up and running quickly—and effectively. In many cases, trainees can be productive in an hour or less and begin tackling major Al modeling tasks in just a few days.

As manufacturers look to adopt computer vision and AI, accelerating learning and maximizing existing resources is critical to their success. By expanding AI modeling skills and knowledge internally, the ITis EVAT platform expands an organization's possibilities—and progress.

Bring Your Al Training Program Up to Speed

Together, IT is EVAT and Intel are revolutionizing how smart factories and computer vision systems take shape. The advanced computer vision training platform delivers a faster and better way to learn, build, and deploy AI models in real-world settings.

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As organizations embrace Industry 4.0 and look to adopt computer vision and other digital technologies, developing a workforce capable of building an agile, flexible, and scalable AI training program is nothing less than mission-critical. The resulting best practice approach supports digital agility and the ability to achieve a competitive advantage.

For More Information:

- Intel® Geti™ Platform
- Intel® Distribution of OpenVINO™ Toolkit
- ITis

About ITis

IT is is a software services company based in Korea. It provides edge AI training and solutions for various industries, including medical, retail, automotive, agriculture, public service, and education. Its mission—and the objective of EVAT—is to empower teams to be more effective and productive.



 $^{{}^{1}\}textbf{TechTarget}, \textbf{Data scientist shortage leaves organizations uncertain.}$

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No product or component can be absolutely secure.

Your costs and results may vary.

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² Third party data, not audited by Intel.