Japan’s Komatsu Selects NVIDIA as Partner for Deploying AI to Create Safer, More Efficient Construction Sites

GTC Japan -- Komatsu, one of the world's largest manufacturers of construction and mining equipment, has selected NVIDIA as its partner to bring AI to jobsites, making them safer and more efficient, NVIDIA announced today.

The partnership - described at GTC Japan by NVIDIA founder and CEO Jensen Huang - will focus on Komatsu using NVIDIA GPUs to visualize and analyze entire construction sites. The NVIDIA® Jetson™ AI platform will serve as the brain of heavy machinery deployed on these sites, enabling improved safety and productivity.

“Artificial intelligence is sweeping across industries, and its next frontier is autonomous intelligent machines," said Huang, speaking at NVIDIA's final of seven global GPU Technology Conferences this year. “Future machines will perceive their surroundings and be continuously alert, helping operators work more efficiently and safely. The construction and mining industries will benefit greatly from these advances."

Construction is the latest in a series of industries in which NVIDIA has signed agreements with market leaders to help revolutionize how they operate. Among these are partnerships with GE Healthcare and Nuance in the area of medical imaging; FANUC in the field of robotics; and more than 225 car makers, startups and research houses - among them, Audi, Tesla, Toyota and Volvo - for autonomous driving.

Construction Industry Primed for AI's Benefits
Safety risks and inefficiencies in the construction industry make it particularly well suited for improvements powered by AI.

Construction sites are generally considered among the more dangerous workplaces because of the presence of heavy equipment, uneven terrain and continuous activity. Last year, sites in Japan alone recorded some 300 deaths and more than 15,000 injuries, according to the Japan Construction Occupational Safety and Health Association.

And Japan's construction industry is particularly challenged because of the nation's severe labor shortage due to an aging population. Of the 3.4 million skilled workers in the domestic industry (as of 2014), roughly 1.1 million, or one-third, are likely to leave in the next decade, according to the Japan Federation of Construction Contractors.

AI to Augment Komatsu's “SMARTCONSTRUCTION" Initiative
To help address these issues, Komatsu began in 2015 rolling out its “SMARTCONSTRUCTION" initiative, connecting data related to onsite workers and objects to make worksites safer and more productive. The initiative has been introduced in more than 4,000 sites across the country, with plans to expand both domestically and internationally.

“We'll start integrating NVIDIA GPUs into our construction sites," said Yuichi Iwamoto, senior executive officer, chief technology officer at Komatsu. “By leveraging NVIDIA's experience in image processing, virtualization and AI, we can further transform construction areas into jobsites of the future."

Extending the SMARTCONSTRUCTION initiative, Komatsu will use NVIDIA technology to create 3D visualizations of construction sites, showing the real-time interaction of people, machinery and objects. Costly onsite equipment can be closely monitored to ensure it is used with optimal efficiency.

NVIDIA GPUs will communicate with drones and cameras in the construction sites, acting as an AI platform for analysis and visualization. SkyCatch will provide drones to gather and map 3D images for visualizing the terrain at the edge. OPTiM, an IoT management-software company, will provide an application to identify individuals and machinery collected from surveillance cameras. Both of these Komatsu partners are also members of NVIDIA's Inception program for AI startups.

At the center of the collaboration is NVIDIA Jetson, a credit-card sized platform that delivers AI computing at the edge. Working in tandem with NVIDIA cloud technology, Jetson will power cameras mounted on Komatsu's construction equipment and enable 360-degree views to readily identify people and machines nearby to prevent collisions and other accidents.

Jetson will also be used in stereo cameras located in the cabs of construction machines to help assess rapidly changing conditions in real time and instruct the driver accordingly. Future applications include high-resolution rendering and virtual simulations of construction and mining sites along with automated control of machinery.

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Certain statements in this press release including, but not limited to, statements as to: the ability of AI to make jobsites safer and more efficient; artificial intelligence sweeping across industries; the abilities, benefits and impact of AI being used in the construction and mining industries; construction sites being considered among the more dangerous workplaces; the abilities, performance, benefits, impact and future application of NVIDIA’s Jetson and GPUs being used in NVIDIA’s partnership with Komatsu and its partners; the plans to expand Komatsu’s SMARTCONSTRUCTION initiative domestically and internationally; and future applications of AI and GPUs in the construction industry are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners’ products; design,

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