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Investment surge gives US the early lead in rise of the robots

Richard Waters in San Francisco and Kana Inagaki in Oshino, Japan



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The US and China are poised to take the lead from Japan and Germany in the race to become the global robotics leader

Surging investment in artificial intelligence is giving the US an early advantage in the race to dominate a new era of robotics, according to investors and experts in an industry that is set to become one of the most strategically important.

Recent advances in AI, particularly in a technique known as deep learning, have shifted robotics from its core industrial market into areas such as self-driving cars, fuelling debate over the benefits and threats posed by the rise of the robots.

As the technology extends its reach beyond factory production lines, the US and China are poised to take the lead from Japan and Germany, which dominate traditional industrial robotics.

Investment in the sector in the US more than doubled to \$587m last year, according to CB Insights, a venture capital research firm. That is helping drive global growth of 17 per cent

a year, according to research group IDC, which [projects](#) the robot market will almost double from \$71bn to \$135bn by 2019.

“The most interesting things are in Silicon Valley or the US,” said Dmitry Grishin, a Russian internet entrepreneur and investor who has raised a \$100m fund to invest in robot and other hardware start-ups. As low-cost robots move into more consumer and business uses, such as drones, China’s hardware manufacturing expertise will also make it a more significant player, he added.

Beijing’s booming demand for automation as it tries to claw its way up the manufacturing value chain has also fuelled efforts to build a local robot sector. However, most industry executives say it will take years for China to match technology from companies in Japan and other established manufacturers.

The threat from new AI and cloud technologies has prompted a scramble among established players not to get left behind. Japan’s [Fanuc](#), the world’s largest maker of industrial robots, has announced plans to start connecting its 400,000 installed machines by the end of this year, to collect data about their operations and improve their performance.

Japan’s manufacturing lead over the US should sustain its edge in industrial robots, said Junichi Hasegawa, chief strategy officer at Preferred Networks, a Japanese deep learning company that counts Fanuc — whose machines are all painted bright yellow — among its investors. “We can’t fight with information stored on the cloud, but the yellow robots are everywhere in the world and they gather data. If you ask whether [Google](#) can do the same, the answer is no,” he said.

While US internet companies such as Google and [Facebook](#) have led the investment in deep learning, Silicon Valley has seen a wider start-up boom in AI and robotics. A collapse in the price of components, thanks to smartphone growth, has made it cheaper to launch robot companies, investors say.

So-called “intelligent” robots play to US strengths through new technologies and software culture, they added.

“At its core, these companies need to be machine vision companies, that get better as they get more data,” said Chris Dixon, a partner at Andreessen Horowitz, a Silicon Valley investment firm.



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The new entrepreneurs rushing into the field are different from the hardware engineers who historically dominated the field, he added: “They don’t like to use the word robotics — they think of [it] as an electrical engineering mindset, versus . . . autonomy and AI.”

The new technologies changing robotics are “available today” and advanced enough to have a disruptive impact across other industries, said Steve Jurvetson, an investor in [Tesla Motors](#) and SpaceX, companies led by Elon Musk.