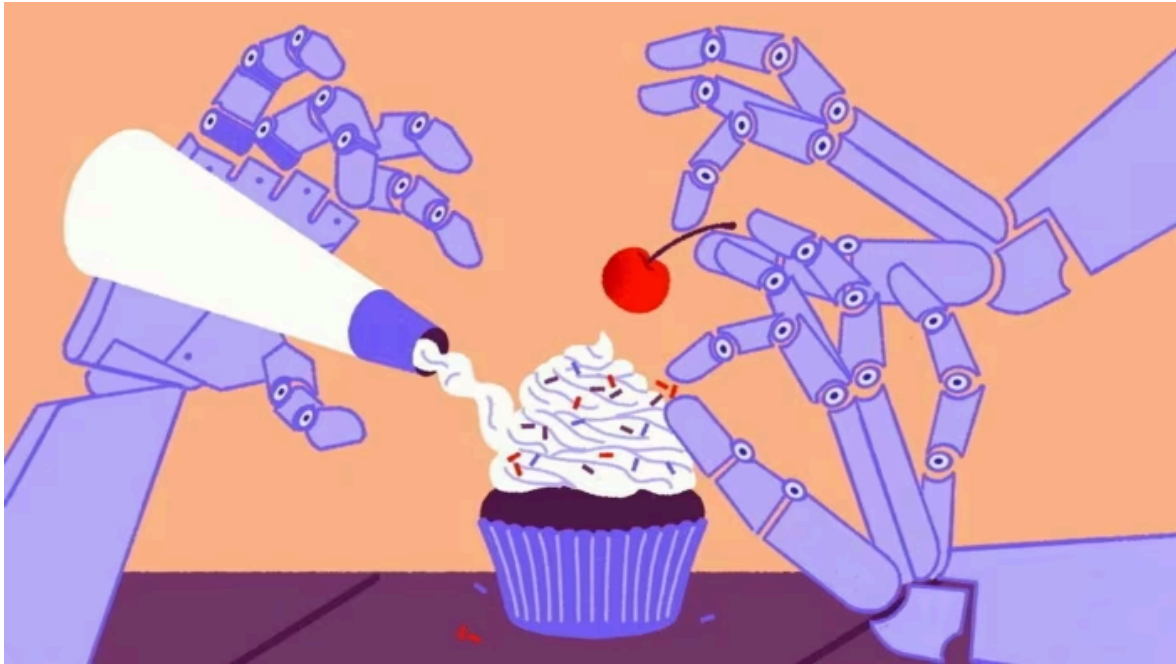


Opinion **Robotics**

The robots preparing to get their hands on your lunch

Technological strides have made automata soft and sensitive enough to pack bento boxes

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Revolution, said Mao Zedong, is not a dinner party. Maybe so. But that doesn't mean that when the revolution comes, there won't be food involved.

This week in Tokyo, to a huge visiting throng from Asia's food production industry, artificial intelligence and robots set out their plans to seize control.

Technological advances made over just the past few years, claim the robots' human advocates, have given them something they always lacked: smart, soft and spatially aware hands. These are working hands for packers that will come first for the cooked spaghetti and steamed dumplings; then for the fried chicken, frangible biscuits and broiled salmon onigiri rice balls.

There was no disguising the robots' ambitions. This was not the time for a concessionary salute to impending human redundancy nor nod to the need for moderation. The ranks of food-processing automata — an array that included Foodly, Delibot and the Nantsune Scorpion — are not threatening conquest by subterfuge or attrition, but offer an unapologetic manifesto of replacement.

Buy our machines today, said the trade-show sales reps from hundreds of manufacturers, and you can do away with people tomorrow. Pamphlets showcasing the robots' ever more brilliant talents pictured humans as grey silhouettes on the future production line — the ghosts of those a would-be buyer would no longer need to employ.

And the mainly Japanese, Chinese, Korean and Taiwanese crowds at the Fooma Japan exposition (not coincidentally representing the region's most demographically skewed nations) had come for exactly this. The food production industry lives on the finest of margins and is often a black spot for productivity gains. Companies want AI and robots: unlike other sectors, the debate is all about output and price. Japan's shrinking population and years of stagnation have given it a fearlessness (future historians may conclude recklessness) in embracing AI-powered automation; other nations know they will have to do the same very soon.

In this context, the Fooma expo represents a layering of multiple revolutions — some desirable, some necessary. The most obvious of these is productivity: the government's latest figures in Japan's food production industry put it substantially lower than for general manufacturing. A 2022 [Bank of Japan paper](#) bemoaned the persistently unchallenging productivity gains, and the related slowness with which resources tended to move from low to high productivity sectors.

Improvement will come, the report implied, with twin upheavals in resource allocation and — critically — a more liquid labour market where workers chase the skills necessary for higher productivity sectors. Japan needs AI-powered robots packing lunch boxes and filling rice balls, in other words, so that its dwindling stock of human capital can do other work.

The revolution most prominently on display in Tokyo this week, said veterans of these events, was technological and a work in progress. This industry has always embraced automation, but has also lived with gaps in its processes — such as quality control — where only humans currently fit. Japan, whose convenience stores and supermarkets demand immense daily production of ready-to-eat meals, is especially aware of this.

A number of recent papers on [robotic food handling](#) highlight the issue: when food is porous, slippery, sticky or easily broken, human hands have tended to be the only option for parts of the process.

But now, by combining more elaborate sensors, AI tools for dealing with overlapping uneven substances and more sensitive gripping tools, that is no longer true: robot hands can gently grasp a precisely sized portion of pasta from a bowl, or select three pieces of fried chicken from a vat of thousands. They may work a little slower than people, agree the sales folk, but they never sleep. Fujiseiki was among a number of companies now able to sell fully automated, beginning-to-end processes for the normally labour-intensive job of assembling bento lunch boxes, onigiri and other packaged pre-cooked foods.

The most striking aspect of this new generation of soft-handed robots, though, was the way in which their handlers say they will replace humans: on a small scale at the individual company level, but in the tens of thousands across an entire industry. Whether it was the sales staff explaining the cost savings on offer or the brochures showing the ghost workers about to be replaced, the revolutionaries will be taking jobs — or liberating humans, depending on your view — two or three at a time.

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Letters in response to this column:

[*Remember, robots and AI won't be buying anything / From AG Rajmohan, Anantapur, Andhra Pradesh, India*](#)

[*Automation isn't a threat to jobs — just look at Flippy / From Tom Cash, Director, Foxmere, Aldridge, Staffordshire, UK*](#)

[*Robots allow humans to be more creative at work / From Sam Tilley, Regional General Manager \(UK, Ireland & Nordics\), Omron Industrial Automation Europe, Milton Keynes, Buckinghamshire, UK*](#)

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