



Clockwise from top left: Robot “chefs” prepare food in a “smart” restaurant in Xihu district, Hangzhou, Zhejiang province, in June. The restaurant attracts customers with dishes made by robots. LONG WEI / FOR CHINA DAILY Mechanical catering at Haidilao hotpot “smart” restaurant at Nanjingnan Railway Station in Nanjing, Jiangsu province. A robot “waitress” delivers food to customers at a restaurant in Fuzhou, Fujian province. Customers take food at a restaurant that can automatically weigh and calculate the price of dishes at Chongqing International Logistics Hub Park in March 2021. PHOTOS PROVIDED TO CHINA DAILY

As COVID-19 restrictions are lifted across the country, Li Xianghui knows it will be challenging for traditional restaurants to handle the increasing number of diners. But for his restaurants, things are different.

Owning four eateries in Wuhan, Hubei province, Li “employs” an array of cooking machines, which can operate tirelessly day and night. Packed in kits, all dishes are semifinished and can be served within minutes after they are put into the machines.

“Automation is the future for the catering industry. It can avoid pressure from labor costs in running a traditional restaurant and increase efficiency,” Li says.

“There is a standardized process by the machines, which can guarantee consistency in the taste of each order,” the 36-year-old man adds.

The cooking machine can make about 2,000 recipes, according to Li.

Once seated, diners scan a QR code and use an app to make their meal selection and pay. With the only waiter putting the semifinished food kit into the machine, the meal will be served in minutes.

What’s more, the robot “chef” has attracted an increasing number of diners since the restaurant’s opening in October.

“The taste is good and the price is not expensive,” a regular customer, surnamed Xu, says.

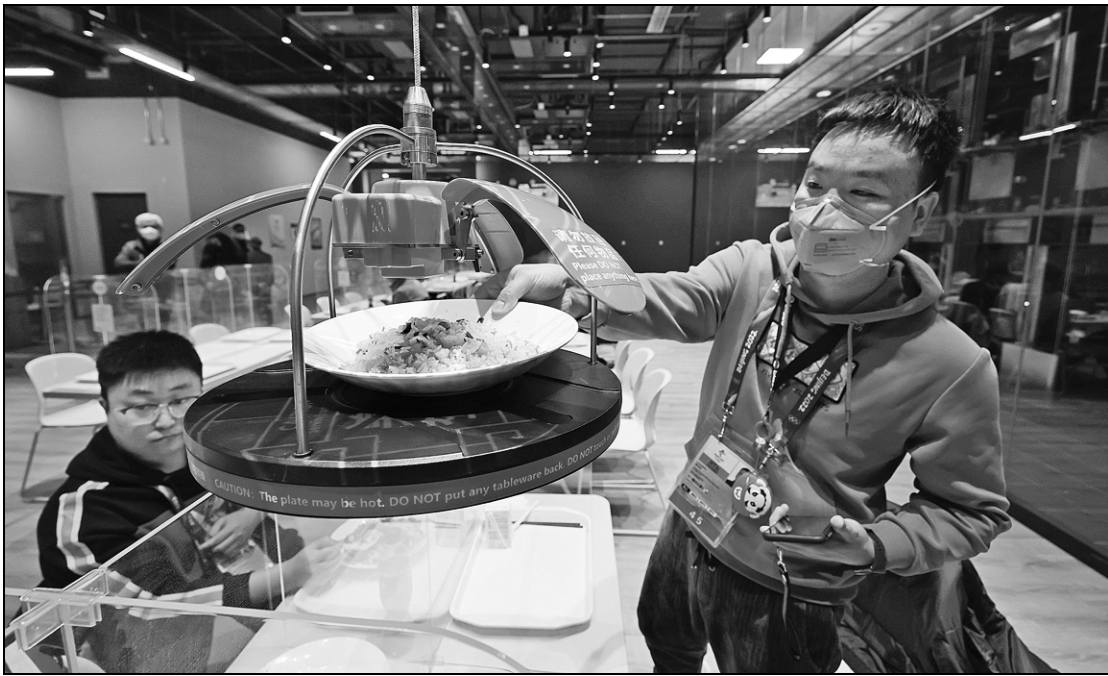
With such eateries springing up across the country, robot “chefs” are not only taking over restaurants but also coming into homes.

Behind the scenes is the country’s growing service robotics industry, which, as of 2021, had a market value of more than 58 billion yuan (\$8.3 billion), according to the Statista database portal. The industry is projected to reach a value of 291 billion yuan by 2027.

“Service robots are constantly improving the level of social ser-

Robots give diners a taste of the future

Increasing number of eateries put automation on the menu, report **Wang Qian** and **Liu Kun** in Wuhan.



A customer collects food from a device at a “smart” restaurant in the main media center during the Beijing 2022 Winter Olympic Games in January last year. YONHAP NEWS AGENCY

vices in catering, retail, logistics distribution, medical rehabilitation and other fields,” says Wang Hong, an official with the Ministry of Industry and Information Technology.

The “smart” restaurant for the Beijing 2022 Winter Olympic Games

may indicate what the future of the food service industry looks like. With no human chefs and waiters, robots took charge of everything.

In 2018, popular hotpot brand Haidilao opened its first “smart” restaurant. The kitchen, equipped with two rows of robotic arms, can

automatically collect prepackaged dishes from cold storage.

For Li, it is only a matter of time before such machinery becomes a common sight in kitchens.

“The labor shortage caused by the pandemic is accelerating this process,” Li says, adding that he plans to

open 20 more eateries this year, staffed by robot “chefs”.

According to an annual report on the country’s restaurant industry released by China Hospitality Association, a shortage of labor is a challenge faced by many business operators.

On Dec 12, the Xidan Mingzhu Market in Beijing announced that it was forced to shorten operating hours because of a shortage of staff.

To seize upon the business opportunity, various domestic robot manufacturers, including Siasun, Uditech and Keenon, have become increasingly more engaged in research and development in the area of service robotics in recent years.

Across the world, robot “chefs” are set to take over cooking in restaurants and technology advances are taking them a step further.

Working in collaboration with domestic appliances manufacturer Beko, researchers from the University of Cambridge have trained their robot “chef” to assess the saltiness of a dish at different stages of the chewing process, imitating a similar process in humans, according to their research published in the journal *Frontiers in Robotics and AI*.

Their results could be useful in the development of automated or semiautomated food preparation by helping robots to learn what tastes good and what doesn’t, making them better “cooks”.

“Most home cooks will be familiar with the concept of tasting as you go — tasting a dish throughout the cooking process to check whether the balance of flavors is right,” Grzegorz Sochacki from Cambridge’s Department of Engineering, the paper’s first author, told *Frontiers in Robotics and AI*. “If robots are to be used for certain aspects of food preparation, it’s important that they are able to ‘taste’ what they’re cooking.”

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Spirit of unity shines through

BEIJING/SHANGHAI — Faced with a rapid wave of COVID-19 infections in China, people have racked their brains to find instant solutions with the help of their warmhearted neighbors and community workers.

In Shanghai, community doctors in the Xietu subdistrict of Xuhui district have limited the amount of antipyretic and analgesic drugs to a maximum of three days’ worth per patient. Packages of the most sought-after drugs, like Ibuprofen, are split into halves to better meet the actual medicinal needs for each treatment course.

“It’s reasonable for medical institutions to unpack and distribute the cold remedies. Getting a cold is common, and most cold medicines are available over the counter at a low price, so packages of cold medication often exceed the amount needed for a single treatment course,” says Zhong Mingkang, chief pharmacist at Huashan Hospital Affiliated with Fudan University.

The community health service center in Xietu subdistrict now serves more than 70,000 local residents, over 16,000 of whom are aged 65 or above, pushing the center to come up with the idea of repackaging its medical resources.

“The practice can more efficiently make use of current resources and benefit more potential patients in the future,” Zhong adds.

Additionally, grassroots medical institutions across the country are doing their best to popularize the proper use of medicine, ward off public panic, dispense medicine under professional guidance, as well as cap the amount of medicine being prescribed.

Just as the saying goes, a near neighbor is better than a distant cousin. In Beijing’s Fengtai district, residents of the Caoqiaoxinyuan community are sharing their spare medicines with each other during this hard time. Some kind neighbors in the community sent an elderly woman, surnamed Liu, fever-reducing medicine and oranges after she asked for help in the community’s online messaging group.

Wang Shiyi, an official with the Yuquanying subdistrict of Fengtai, where Liu’s community is located, praised such acts of kindness and unity. “Our subdistrict has encouraged the residents to help each other by sharing their extra medicines and antigen test kits, despite the temporary strained supply. Their spirit of unity can help solve the problems instantly within their residential building,” Wang says.

The most mobile workforce in China’s major cities has joined the effort to restore normal life in the face of the pandemic.

Ma Liang, head of Shanghai’s Huanqiang delivery station of Meituan Waimai, a major Chinese food delivery platform, now prioritizes drugstore orders over their mounting takeout burden.

Since the end of November, the delivery station has seen its takeout orders soar by 40 percent compared to normal volumes. However, many staff members have fallen sick due to the COVID-19 pandemic, and currently, less than 70 percent of the station’s total delivery staff are covering the rocketing online orders.

“Those who place drugstore orders are often patients infected by COVID-19 and are in urgent need of medicine, and thus we will deliver such orders first,” Ma says.

The courier sector has also adopted similar steps. Couriers at Shanghai’s Xuhui station of ZTO Express now cherry-pick parcels that are sent from drugstores and put them to the top of the queue, so that those packages can be delivered first.

“Though the order boom will continue for some time, I believe we can tough it out as long as we understand and help each other,” says Wang Jin, a Meituan delivery rider in Shanghai.

XINHUA

The China that lives behind my eyes when I’m in bed

On so many nights over the past 16 years, I suddenly realize that I’m in the wrong country. I’m either in China or the United States and was supposed to catch a flight back the day before. But I got confused because of the International Date Line.

And because I didn’t make the plane, I’m in trouble. So, I panic and rush to the airport — or, I try to, at least.

Sometimes, twisting bridges crumble as we drive over them in a car without brakes. Sometimes, we have to steer up nearly vertical cliffs that are so steep that our vehicle starts to slide backward, threatening to flip down the sheer slopes. Sometimes, I arrive at the airport and realize I’m actually in some country other than China or the United States — recent-

ly, Uganda — and can’t fly out, for whatever reason.

It’s a reoccurring theme in my dreams and one that has become increasingly frequent since I haven’t been able to travel back to the US since the COVID-19 outbreak. During this time, in real life, my parents’ house burned down, both my paternal grandparents passed away and my brother got married.

Another variation is that I’m finishing my PhD in a Chinese university but suddenly realize I never completed a required class in high school in the US. And, of course, I can’t find my classroom in either place.

This is perhaps the most pervasive, yet far from the only, way China has shaped my dreams since I moved to Beijing 16 years ago.

I’ve had nightmares about being buried alive after May 2008, since I spent the following half decade making 15 journeys through the quake zone as a journalist and volunteer.

I was actually supposed to be near the epicenter when the temblor struck, but wasn’t because of a scheduling change. The person who went in my place broke her neck when a landslide buried the bus she was riding in, and fewer than half of the people aboard survived.

Most of my dreams are set in China, and I mostly speak Chinese in them since most characters are Chinese. However, just like in waking life, I speak mostly English to my family and foreign friends and strangers.

My 11-year-old daughter, who was born and raised in Beijing, reports the same. My wife also speaks both but says her Chinese is better in her dreams than in real life.

However, our 35-year-old friend — a Chinese woman who studied in Australia for a couple of years and works in a bilingual office — reports dreaming exclusively in English.

Still, another Chinese friend who

works in the same office and is also fluent in both languages says she never dreams in English.

But our multilingual Tibetan friend, who has never been abroad, says he dreams in two of his mother tongue’s dialects, as well as Chinese and English.

Lately, more of my dreams take place in quaint Chinese villages, likely because I’ve spent much of my time in the country traveling through rural communities.

The other night, I bought an entire hamlet that hugged the edge of a cliff.

Dozens of lakes blazed neon blue at the foot of the crag. But after I made the purchase, I discovered countless glow-in-the-dark crocodiles writhed in these vibrant water bodies. And they were hungry, I learned, after I dived headfirst into the brilliant waters.

The first time I spoke Chinese in my dream was in 2006, when I

shouted *jiuming* (save me) as I lost control of my parachute and floated toward a lake teeming with cattle-sized piranhas with lions’ legs.

Nobody rescued me. I woke up as the first one sank its jaws into my calf.

But when I came to, I remember feeling happy that I was learning enough of the language to start using it in my sleep.

Actually, the first sentence of this column shot to my mind when I awoke from a dream about missing a flight to the US recently.

Thing is, it will actually be a dream come true when I do finally get to visit my family back home for the first time since the pandemic. Then, I will be in the right country at the right time in real life.

But I wonder where I’ll go when I fall asleep.

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Erik Nilsson
Second Thoughts