Facial recognition software scans a crowd in Beijing. A massive database matches faces to ID cards, so the government can keep tabs on people.

BIG BROTHER COMES TO CHINA

The Chinese government is using high-tech surveillance to track the nation's huge population—and keep people in line   BY PAUL MOZUR

I n the Chinese city of Zhengzhou, a police officer wearing facial recognition glasses spotted a heroin smuggler at a train station.

In the city of Qingdao, cameras powered by artificial intelligence helped the police snatch two dozen criminal suspects at a big annual festival.

In Wuhu, a fugitive murder suspect was identified by a camera as he bought food from a street vendor.

With millions of cameras and billions of lines of computer code, China is building a high-tech authoritarian future. The country is embracing technologies like facial recognition and artificial intelligence to build a vast national surveillance system to track its 1.4 billion people.

"Right now, China is in the midst of building the most far-reaching and sophisticated surveillance state in the world, and

High-tech glasses let police in Luoyang scan faces with the help of artificial intelligence.

it's all enabled by technology," says Samm Sacks of the Center for Strategic and International Studies, in Washington, D.C.

For a long time, technology has been considered a powerful force for spreading democracy. The idea was that increased access to technology would bring people—especially those in repressive countries like China—more freedom by connecting them to the broader world. But in China, the reverse has happened: Technology has given the government more control.

In some cities, cameras scan train stations for China's most wanted. Billboard-size displays show the faces and names of jaywalkers and list the people who don't pay their debts. Facial recognition scanners guard the entrances to housing complexes. Already, China has an estimated 200 million surveillance cameras—four times as many as the United States (*see "The U.S. & High-Tech Surveillance," p. 10*).

Some parts of China are further along than others in their use of the new technologies. But the gaps may not matter: Chinese authorities are talking up their surveillance projects, so even the possibility that the government may be watching is often enough to keep citizens in line.

300 Million Cameras by 2020

Critics liken the government monitoring to the Big Brother state in George Orwell's famous dystopian novel, *1984*, and it's already revolutionizing life in China. Consider what happened recently in Xiangyang, a midsize city about

> **The surveillance system is part of a trend toward more government control.**

700 miles west of Shanghai. The intersection south of Changhong Bridge used to be a nightmare, with cars zooming through and jaywalkers darting into the street.

Then in summer 2017, the police put up cameras linked to facial recognition technology and a big, outdoor screen. Photos of lawbreakers were displayed alongside their names and government ID numbers.

"If you are captured by the system and you don't see it, your neighbors or colleagues will, and they will gossip about it," says Guan Yue, a government spokeswoman. "That's too embarrassing for people to take."

There have even been moves to use this kind of technology to monitor students in classrooms. One high school in the city of Hangzhou, south of Shanghai, uses cameras to scan students' faces every 30 seconds. Facial recognition software and AI analyze the images to determine whether the students are paying attention—and to assess their mood.

China's surveillance systems are part of a larger trend toward more government control. The man behind that trend is Chinese President Xi Jinping. Xi is China's most powerful leader in decades, and the recent elimination of term limits means he could remain president indefinitely. Since taking office in 2012, Xi has tightened his grip on China's massive military and used an anti-corruption campaign to purge Chinese officials he considers disloyal. Xi's government has also intensified online censorship that

includes bans on U.S. companies like Google and Twitter and carried out a broad internet crackdown.

To consolidate control, Xi has launched a major upgrade of China's surveillance state. China has become the world's biggest market for security and surveillance technology, with analysts estimating the country will have almost 300 million cameras installed by 2020. China's police are expected to spend an additional $30 billion in the coming years on techno-enabled snooping. Human rights groups find this trend deeply troubling since it gives the government powerful new tools to track its critics.

Tracking Faces, Clothing & More

Judging Chinese public reaction can be difficult in a country where the news media is controlled by the government. But many Chinese so far don't seem concerned about being constantly watched. In fact, some cheer on new attempts at law and order, such as the efforts to publicize jaywalkers in Xiangyang.

"It's one of the biggest intersections in the city," says Wang Fukang, a college student who volunteered as a guard at the crosswalk there. "It's important that it stays safe and orderly."

This appears to be just the beginning. The government is funding research and development into technologies that track faces, clothing, and even how a person walks. With all that spending, a new generation of Chinese start-ups has emerged to meet the demand. And many of China's high-tech security companies are readily providing data to the government.

Shen Xinyang, chief technology officer at a start-up called Eyecool, says his company has surveillance systems at more than 20 Chinese airports and train stations, which has helped catch 1,000 criminals. Eyecool, he says, is also handing over 2 million facial images each day to a new big-data police system called Skynet.

At a building complex in Xiangyang, a facial recognition system set up to let residents pass quickly through security gates adds to the police's collection of photos of local residents, according to local Chinese Communist Party officials.

Wen Yangli, an executive at Number 1 Community, which makes the product, said the company is at work on

THE U.S. & HIGH-TECH SURVEILLANCE

Americans are increasingly being watched, and some are worried about what that means BY PATRICIA SMITH
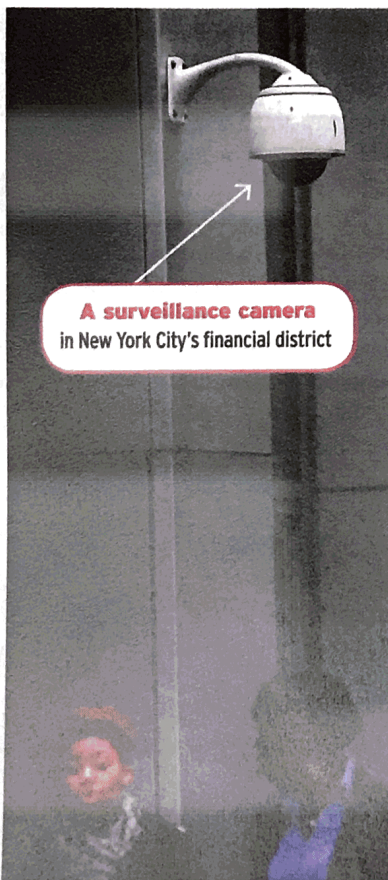
A surveillance camera in New York City's financial district

When you go to any airport in the U.S., you're being watched. When you walk into a Gap to look around, you're being watched. And it's possible you're being watched as you walk down the street in a big city.

"Surveillance in the United States has increased exponentially in the last 20 years," says Randolph Lewis, author of *Under Surveillance: Being Watched in Modern America*.

Lewis says the number of surveillance cameras in the U.S. is unknown, but he estimates it to be in the millions. That includes government cameras on buildings, street lights, and public transit, as well as closed-circuit cameras in stores, offices, and private buildings. Lewis says that only ab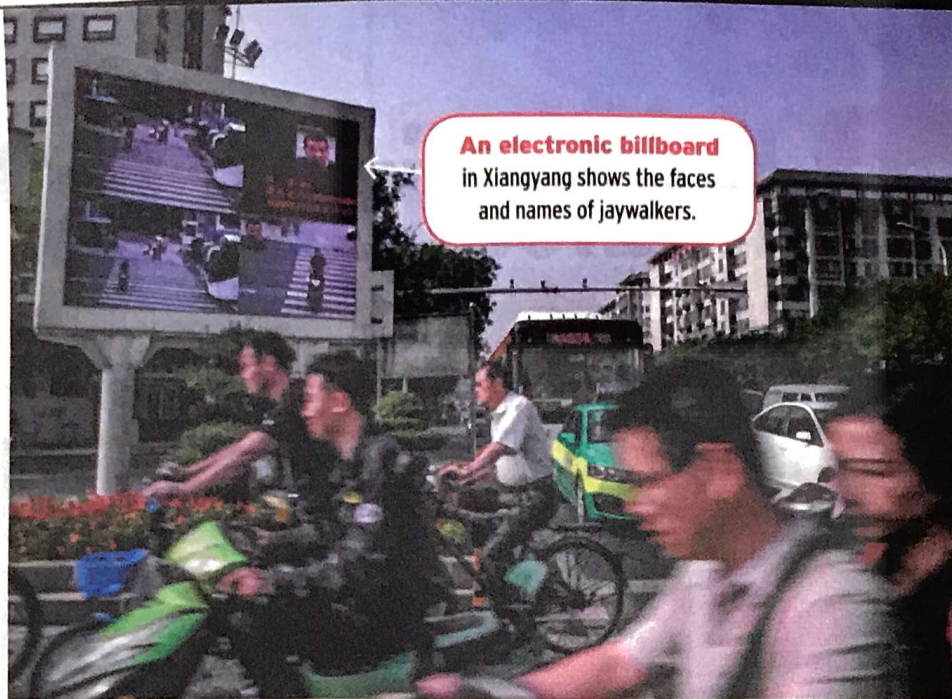out 10 percent of those cameras are connected to any kind of high-tech software like facial recognition or artificial intelligence.

"But that's clearly what the future is," he says. "They will all be like that eventually."

Police often credit surveillance for helping track down criminals. But the Fourth Amendment to the Constitution guarantees Americans some privacy rights and provides protections that people in a country like China don't have. Our courts will have to decide when efforts to improve public safety wind up trampling on Americans' basic freedoms, according to Greg Nojeim of the Center for Democracy & Technology, in Washington, D.C.

"The Supreme Court," Nojeim says, "is not shying away from bringing privacy protections into the digital age."

An electronic billboard in Xiangyang shows the faces and names of jaywalkers.

O SKYNET

Monitors show China's police data system using facial recognition to track people.

Just the threat of being watched is enough to keep people in line.

campaign to persuade the Chinese people that the high-tech security state is already fully in place.

Many people seem convinced. At the intersection in Xiangyang, jaywalking has decreased. At a building complex in Xiangyang where a facial recognition gate system has been installed, a problem with bike theft ceased entirely, according to building management.
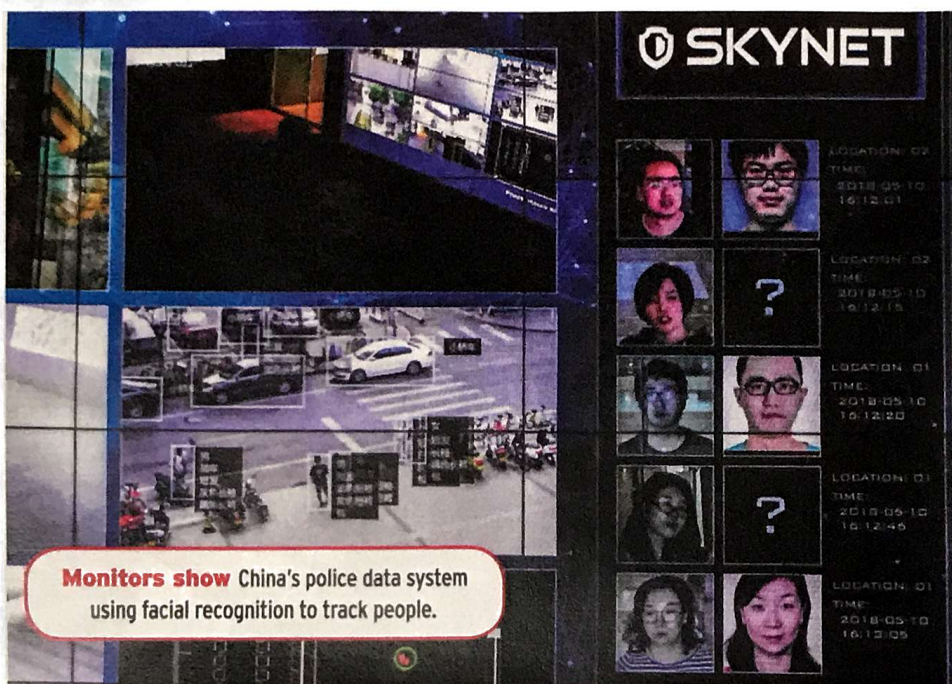
"The whole point is that people don't know if they're being monitored, and that uncertainty makes people more obedient," says Martin Chorzempa, a China expert at the Peterson Institute for International Economics in Washington, D.C.

Even where the technology is already in use, experts say it doesn't even have to work properly all the time to be effective. Take China's facial recognition glasses.

Police in the city of Zhengzhou have recently been using the high-tech glasses at a high-speed train station. But the glasses work only if the target stands still for several seconds, so they're no good for scanning crowds. They've been used mostly to check travelers for fake IDs.

Even so, just the idea of the facial recognition glasses has been enough to get some criminals to confess.

Shan Jun, the deputy chief of police at the railway station in Zhengzhou, mentions the time his department grabbed a heroin smuggler. While questioning the suspect, Shan says, police pulled out the glasses and told the man that what he said didn't matter. The glasses could give them all the information they needed.

"Because he was afraid of being found out by the advanced technology, he confessed," Shan says, adding that the suspect had swallowed 60 small packets of heroin.

"We didn't even use any interrogation techniques," Shan says. "He simply gave it all up." •

other applications. One would detect when crowds of people are clashing. Another would allow police to use virtual maps of buildings to find out who lives where.

Catching a Smuggler

Despite the vast and growing capabilities of Chinese surveillance, large gaps remain. The facial recognition system remains more of a digital patchwork than an all-seeing technological network. Many files still aren't digitized, and others are on mismatched spreadsheets that can't be easily compared. Systems that police hope will someday be powered by AI are currently run by teams of people sorting through photos and data the old-fashioned way.

But Chinese authorities who are generally tight-lipped about security measures have embarked on a public relations

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