

# Local experts awarded for making innovative technical advances

By YUAN SHENGGAO

Standing near a permanent magnetic motor lift at a coal mine in the Shanxi city of Lyuliang, Kou Ziming, a professor and researcher at the mining machinery and automation department of Taiyuan University of Technology, was happy with the machine's performance after a trial operation.

Kou is the inventor of this lift. Used for transporting workers and equipment, a shaft lift is an important tool in coal mining.

He was told by the chief of the mine that the machine has performed well in terms of boosting efficiency and safety and reducing noise.

"The trial operation proves that it can improve efficiency by 23 percent, reduce noise by 20 percent and save more than one-third of operational space," Kou said. "This has met our designed target perfectly."

For his contribution to the upgrading of the coal-mining industry, Kou was recently listed as one of the nation's outstanding professionals by four national organizations, including the Ministry of Human Resources and Social Security and the Ministry of Science and Technology. The list is released every five years.

"As a researcher, my primary concern is how to transfer the research results into productivity and serve the needs of the society," Kou said.

When it comes to the mining industry, Kou said safety, efficiency and energy conservation are the top three focuses of his research.

More than 100 shaft lifts powered by his patented permanent magnetic motor have been used in coal mines throughout the country. The highest power output of one is 1,600

kilowatts and the deepest operational depth reaches 1,000 meters underground.

Also on the list of the nation's outstanding professionals is Zhang Ruiping, a doctor, researcher and deputy chief of Shanxi Bethune Hospital based in the provincial capital of Taiyuan. He won the honor for his research in the field of molecular imaging.

"The molecular imaging system developed by our research team can effectively identify the boundary of tumors inside the human body, which can help a lot with surgical operations," Zhang said.

Shanxi has seen an increasing number of its researchers and scientists winning national awards over the past few years.

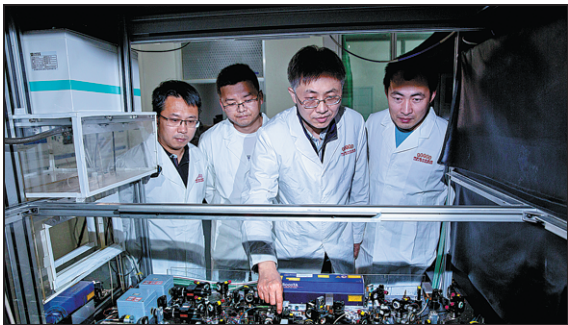
A recent development was that Zhang Jing and Cheng Fangqin from Shanxi University were granted second prizes at the National Science and Technology Awarding Conference on Nov 3.

Zhang Jing was awarded for his quantum-controlling technology in the photoelectronics industry and Cheng for her research in the clean and high-efficiency recycling of coal refuse and coal mine solid waste.

In addition to the top scientists, Shanxi's development in science and technology is supported by its force of 2.02 million engineers and researchers, according to Bai Jinli, an official at the Shanxi Department of Human Resources and Social Security.

The official said the figure is expected to grow to 2.3 million by 2025 as more sci-tech professionals are trained locally or introduced from the rest of the country and the world.

*Wu Jia contributed to this story.*



Professor Zhang Jing conducts research along with his colleagues at Shanxi University. JIA LIJUN / FOR CHINA DAILY

# Farmers achieve sales success in e-commerce

By YUAN SHENGGAO

Livestreaming has proved an effective channel for selling produce, particularly in rural areas. That's what Li Yuling, a farmer in the village of Mijiawan in the Shanxi city of Hejin, has realized in recent years.

The farmer said she began to sell apples by posting on her WeChat Moments three years ago. "The sales have grown steadily and I've been satisfied over the years."

But Li said it was because of a livestream show in October last year that she realized online sales can really help farmers make a big fortune rapidly.

Li's brother, Gao Feng, also a farmer, had just harvested 50 metric tons of sweet potatoes.

Gao was worried about the storage and sales of the produce after learning from the weather forecast that a severe flood was on its way to Hejin. So he asked Li for help.

Li broadcast a livestream on Dou-



Thanks to the teachers from various universities, colleges and institutions in Shanxi, I have mastered a lot of skills in expression, display, interaction and making short videos."

**Li Yuling**, a farmer in the village of Mijiawan in Hejin

yin, the Chinese version of TikTok. While displaying piles of sweet potatoes in the field, Li also described the weather conditions in her village, telling people the produce might be destroyed by the coming flood.



Sellers in Shanxi are ready to deliver parcels to buyers throughout the country after reaching deals online. LIU TONG / FOR CHINA DAILY



Freight trains operated by the Taiyuan Bureau of China Railway Group are ready to deliver Shanxi-produced coal to the rest of the country. GUO YANJIE / FOR CHINA DAILY

## Shanxi increases production to ensure electricity supply across the country

By YUAN SHENGGAO

Companies engaged in energy production and supply in North China's Shanxi province are making efforts to increase output to meet the country's increasing demand for coal and electricity.

Since the third quarter of last year, some regions in China have suffered power shortages due to the short supply and rising prices of coal and other energy resources.

Shanxi's energy companies, especially coal producers, recognize power shortages pose a challenge to economic development and people's lives, especially in winter.

Jinneng Holding Group is among such companies in Shanxi that have played a crucial role in stabilizing coal supplies.

One of its solutions to ensure the supplies is the use of the latest digital and automatic technologies to improve work efficiency.

In a control room of the Tashan Coal Mine operated by Jinneng Holding, staff member Cao Min uses a computer to control all kinds of mining operations, including coal cutting and conveying in shafts more than 100 meters below the surface.

According to Cao, all the underground mining devices are connected to the control room by a 5G network, making it possible for intelligent and fully automated mining and contributing to a substan-



tial improvement in work efficiency and safety.

Jinneng Holding is not alone in using smart mining to improve efficiency and increase output.

According to the Shanxi Energy Administration, the province now has a total of 154 intelligent coal mining sites, which account for about 68 percent of the total coal output in the province.

Huayang Group based in the eastern Shanxi city of Yangquan is another example using advanced equipment and technologies to increase output.

"Thanks to the upgrades of the conveying system at our train-loading yard, the speed of coal-transport conveyor belts has been increased from 2 meters per second to 2.5 meters per second," said Jia Yi, a manager at Huayang Group's No 1 Coal Mine. "This allows us to ship more than 2,000 metric tons of coal to our clients a day."

The executive added that the efficiency and output were also boosted by technological upgrades in the shafts.

More than a half of the coal mine's output has been delivered to South

China's Hainan province via trains and ships, Jia said. He added that Huayang Group had shipped more than 1.7 million tons of coal to Hainan by Dec 22.

According to the Shanxi Energy Administration, Shanxi's daily output of coal has been maintained at 3.3 million tons since October. Its total output during the first 11 months of 2021 amounted to 1.1 billion tons, increasing 12.4 percent or 120 million tons from the same period of 2020.

To ensure the smooth transportation of coal, railway operators in Shanxi have made great efforts to improve efficiency.

The Taiyuan Bureau of China Railway Group is the leading railway transportation operator in Shanxi in ensuring coal supplies to the rest of the country.

To address nationwide shortages in coal supply, the bureau has purchased 100 high-performance locomotives dedicated to coal transportation since October.

The bureau has 642 specialized railway lines linking various coal-mining sites in Shanxi.

The Yumengou freight train station in Taiyuan, which is operated by the bureau, for instance, has specialized lines to connect Shanxi's major coal mines like Du'erping, Guandi and Ximing, according to Ma Jie, deputy chief of the station.

"We have substantially increased train dispatches to ensure coal sup-

plies to the entire country," Ma said.

The executive said that the station was previously used to transport coal to four power plants in Shanxi. "But now we have added another 20 plants to our list of shipments, including 18 in neighboring Henan province and two in Central China's Hubei province."

The station currently dispatches seven trains to transport coal to such destinations every day, which means a daily coal transportation volume of 21,000 tons.

Statistics from the Datong Bureau show that the company transported about 660 million tons of Shanxi-produced coal to the entire country in 2021.

The Datong-Qinhuangdao Railway, which links Datong in northern Shanxi and the port city of Qinhuangdao in Hebei province, is the most important railway in the country for coal transportation. It transported 420 million tons of coal in total last year, according to the bureau.

In addition to coal, Shanxi has also increased the supply of electricity to the rest of the country.

Statistics from the Shanxi Energy Administration show that the province supplied 110.76 billion kilowatt-hours of electricity to other regions during the first 11 months of 2021, which surpassed the total volume of the whole of 2020.

*Guo Yanjie contributed to this story.*



Remnants of the Shoukoubao section of the Great Wall in the county of Yanggao. YANG JIANMIN / FOR CHINA DAILY

# Datong host to varied sections of Great Wall

By YUAN SHENGGAO

Shanxi is nicknamed "the Great Wall Museum" as it is said to be home to the longest stretch of the iconic structure built throughout a 2,000-year period.

The northern Shanxi city of Datong is one of the best places in the province to see the ancient wonder featuring architectural characteristics of different periods.

The construction of the Great Wall is said to have begun in the Warring States Period (475-221 BC) and ended some 400 years ago during the Ming Dynasty (1368-1644).

Datong, standing at the border between the farming Han and the northern nomads in ancient China, is said to boast all the periodic sections of the Great Wall.

The city also features the largest density of Great Wall sections in Shanxi, as it is surrounded by the outer Great Wall in the north and

the inner Great Wall in the south.

The outer Great Wall is more than 250 kilometers in length, spanning such counties and districts as Yanggao, Xinrong, Zuoyun, Youyu, Pinglu and Pianguan.

The inner Great Wall extends from Lingqiu county in the east and meets the outer Great Wall in Pianguan in the west.

Many visitors to and locals in Datong say the Great Wall is attractive because of its storied history and their emotional links with the greatest defense project of ancient China.

When touring the Deshengbao section of the Great Wall in Xinrong district, Xu Yaxin, a tourist from East China's Zhejiang province, said: "The Great Wall is a symbol of China. And it is in Datong that I fully understand its significance in history and culture as the city presents the richest forms of the wall and tells so many stories about

its history in about 2,000 years."

"After touring the Great Wall sections and hearing so many stories from the locals, I've got to know that it has been witness to both conflicts and exchanges.

"In times of peace, the Great Wall passes were the venues of exchange between the Han people and nomads in the north.

"When wars took place, the wall was pinned with high hopes in the defense against invaders. And if the wall was captured by the enemies, it was always disastrous to the nation," Xu said.

To make the best use of the Great Wall as a source for tourism, the government of Datong has made great efforts to improve infrastructure, including a highway to link many sections.

"With this highway, tourists will be able to access as many Great Wall sites as possible to explore their hidden mysteries scattered in the mountains, river valleys and plains," said Li Zhiyao, a Great Wall researcher in the city of Youyu. "This will give a strong boost to rural tourism in Datong and help rural residents increase their incomes."

*Peng Ke'er contributed to this story.*