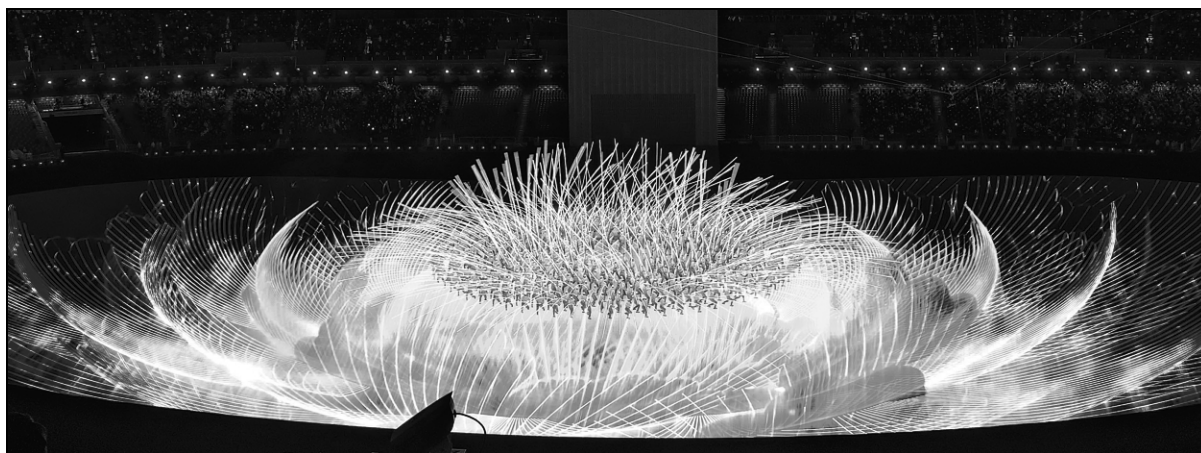


CHINA



The *Li Chun* performance lights up the Bird's Nest during the opening ceremony of the 2022 Beijing Winter Olympics, in which martial arts students from Shandong province played a key role. FENG YONGBIN / CHINA DAILY

Martial artists add spring to Winter Games ceremony

By ZHAO RUIXUE in Jinan
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After more than four months of training for about seven hours a day, with thick calluses forming on their hands, 393 martial arts students staged a visual feast of blooming flowers and waves of green grass, signaling the start of spring, at the National Stadium to kick off the opening ceremony of the 2022 Beijing Winter Olympics on Friday.

The program, titled *Li Chun* — the beginning of spring, the first of the 24 Chinese solar terms — was performed by students from two martial arts schools in Shandong province. Aged from 14 to 18, they wielded 9.5-meter-long flexible poles that emitted multiple colors.

"This kind of matrix performance used to be presented with banners and flags, but this time we used a new material whose flexibility and intensity can present an effect of rising and falling, such as wind blowing grass low and dandelions whirling in the wind," said Gao Zhiyi, a director of the program, who is deputy head of the

music school at Shandong Normal University.

It was not easy to present the matrix with long, flexible poles, Gao said.

"It's like using pens to portray the effects made by brushes," he said. "The program, lasting around three minutes, had 200,800 moves."

The students needed to memorize complex movements for the routine, and their movements were individually choreographed, said Zang Hua, deputy principal of the Zhonghua Martial Arts School in Laizhou, Yantai, Shandong.

"The biggest challenge was to control the poles, which weigh 5 kilograms each," he said.

For the first two months of training, the students used hard sticks to practice.

"When they started to use flexible poles for the first time on Dec 15, they were all shocked by the longer, lighter and softer props, which have different strength points and angles than the sticks," Zang said.

To prevent the poles from breaking, the students spent long hours



Martial arts students perform during the Games' opening ceremony. ZHANG WEI / CHINA DAILY

of practice by the seaside in Yantai, where they learned to overcome wind and improve stability.

"Another difficulty is to turn the switch that controls the color change on and off," said Yang Shengjie, director of the martial arts office at Yuncheng Songjiang Martial Arts School in Heze.

The students needed to switch manually from the green color of

grass to the white color of dandelions in a coordinated fashion, Yang said.

Sun Xingzhe, a 17-year-old Zhonghua Martial Arts School student, said, "Although I didn't make it home to stay with my family for Spring Festival because of the rehearsals, I feel honored to have attended the Beijing Olympic Games."

Robot torch relay vehicle reveals road to the future

By LUO WANGSHU
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An unmanned vehicle carried the Olympic torch this month for the first time in Games history, showcasing China's driverless vehicle ambitions and capabilities.

The driverless car, developed by Chinese information technology giant Baidu, carried the torch for the 2022 Beijing Winter Olympic Games about 800 meters on Feb 2 at the capital's Shougang Industrial Park.

"We'd prefer to call it a robot because we will increasingly engage with more moving robots in our daily lives," said Wei Dong, vice-president of Baidu's automatic driving sector, adding that the vehicle represents the automobile industry's future.

The vehicle, which does not have a steering wheel, is a prototype, he said, adding that the team developing it will continue to improve its functions.

While the robot involved in the torch relay represents the future of unmanned vehicles, many unmanned cars using mature technologies have been put into operation in other areas.

In Yizhuang, a southern suburb of Beijing, residents have been able to hail robot taxis via a mobile phone app since Nov 25. The first commercialized autonomous driv-

ing project in China, subsidies keep fares to just 1 yuan (15 cents) a trip.

Passengers can click on the "start" button on screens in front of the back seats, and off they go.

Though a safety person is required to sit in the driver's seat, in accordance with current regulations in China, he or she does not need to lift a finger unless an emergency happens.

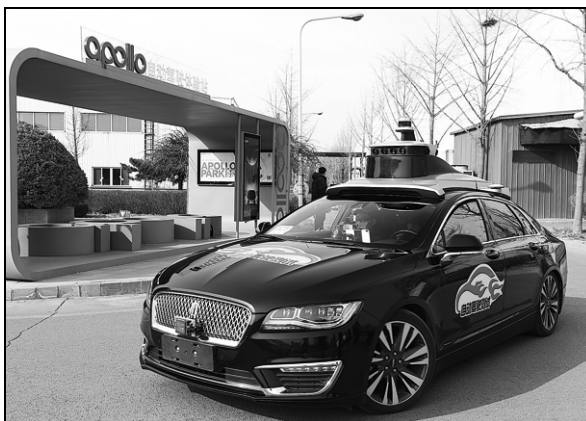
The vehicles follow a preprogrammed route and can operate automatically throughout the entire trip, including making turns, changing lanes, using turn signals when changing lanes and stopping for pedestrians or at traffic lights.

Icons representing the vehicle and other road users and obstacles, including cars, bicycles, buildings and pedestrians, appear on the screens during the trip.

More applications have also been applied in Beijing's northwestern Zhongguancun tech hub. A minibus with 10 seats, developed and operated by Qcraft, a self-driving startup, offers commuting services between an industrial park and nearby subway stations.

The vehicle, with several radars and cameras, can recognize objects and obstacles as far as 250 meters in front of it, and 50 meters from its sides and rear.

"It is a trend to increase the



A driverless car developed by Baidu navigates an industrial park in Beijing's Yizhuang area on Wednesday. WU XIAOHUI / CHINA DAILY

number of short-distance buses, mainly serving passengers within a 3 kilometer radius of subway stations," said Hong Zexin, the company's marketing director, adding that traditional buses face challenges such as low punctuality and varying passenger numbers.

The company has operated such services in six Chinese cities, with nearly 100 buses deployed. All the services are free, in accordance with current regulations.

According to the Beijing municipal government's work report last

year, the city is striving to build a smart transportation network featuring the deep integration of vehicles, roads, networks and cloud computing. It is also encouraging the development and use of unmanned vehicles.

The Chinese government has also released policies to guide the industry's development. In 2020, 11 ministry-level departments jointly released a strategy guideline on the innovative development of smart vehicles, setting the goal of building a smart vehicle system by 2025.

International students team up for Olympic song

By ZOU SHUO
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More than 100 international students at Chinese universities from more than 50 countries have recorded a song, *When the Ice is Shinning*, to convey their best wishes for the ongoing Beijing Winter Olympics.

The five-minute bilingual song, in Chinese and English, was recorded separately by students from different cities and later mixed together.

The tune was composed by Shin Moon-sub, a South Korean student, with the Chinese lyrics written by Chinese student Zhang Haomiao

and the English ones by Francisco Arriaga Gomez from Mexico. They are all studying at Shenzhen University and are members of the Study in China Cloud Chorus.

Part of the lyrics go: Beijing is waiting for you all. Get united under this light.

Be a part of this brotherhood, sharing the spirit, competing together just as one.

Raise your glass, reach the stars, follow our dreams, it is in our hands.

Light the torch, so we can begin, memories to be made.

Shin said he has a special affinity with songs for the Olympics because the theme song *Hand in*

Hand for the 1988 Summer Games in Seoul had warmed the hearts of many and was still highly relevant today.

He also liked the theme song for the 2008 Beijing Summer Olympics, *You and Me*, which had a more soothing, warmer rhythm that touched people's hearts, he said.

Composing a song for the Beijing Winter Olympics was one of his major plans last year, and he wanted to bring warmth, courage and strength to people around the world who are still in the middle of the COVID-19 pandemic, he told *People's Daily*.

Shin started composing the song in March and asked for Zhang's

help with its Chinese lyrics because his Chinese was not good enough.

The Olympics is a global sports event, so it is very fitting to have international students from all over the world record the song, he added.

Hannah Robinson, who is studying at Northeast Normal University in Changchun, Jilin province, and hails from the United States, said just like the Games' slogan "Together for a shared future", the Olympic Games represent humanity's yearning for peace and solidarity.

"Finishing this song with students from many countries has also made me feel the strength of solidarity," she said.

Snowboarder expresses joy over kindness

Netizens touched by US competitor's praise of opening ceremony volunteer

By ZHANG YANGFEI
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An exchange between an athlete from the United States and a Chinese volunteer at the Winter Olympics opening ceremony on Friday has touched the hearts of netizens, with many hailing it as a beautiful display of the Olympic spirit.

On Saturday, US snowboarder Tessa Maud uploaded a video on TikTok documenting her entry into the National Stadium with the US delegation on Friday night. In the video, she captured a male volunteer in a pink shirt waving his hands at her excitedly and shouting "welcome to China".

In another video, she shared her feelings toward the ceremony, saying she "kept watching the opening ceremony video over and over again and was just crying because it was the cutest thing ever".

"That guy who said 'welcome to China' literally makes me tear up every time," Maud said in the video. "They are so nice. All the volunteers are so sweet and kind. They are so happy that we're here. We feel so welcomed."

Her videos garnered hundreds of thousands of views, and many left comments saying they were touched by the warmth and friendliness of the volunteers.

"Those volunteers were on their feet jumping around for a couple of hours and still had so much energy," one user said.

Another said, "This is the kind of Olympics we are supposed to have, just people with Olympic spirit celebrating together."

The videos also circulated widely on Chinese social media and caught the attention of the volunteer involved, Sun Zeyu, an undergraduate student at Tsinghua University. After watching the video, he wrote a letter to Maud, saying he was "really touched" that she remembered him and the welcome.

He also thanked her for recording the most unforgettable moment of his life and invited her to visit China again when the COVID-19 pandemic is over. "I can be your tour guide and tell you 'welcome to China' again without a face mask," he wrote.

On Sunday, Maud released another video after receiving the letter, saying she was "so beyond thankful" for Sun and other new friends who have been so loving and welcoming.

The interactions have touched the hearts of many netizens, and Sun said he had received many messages of love and support over the past few days.

He said that although all the volunteers had spent months train-

“ This very natural, simple kindness between people is really the most wonderful thing ever. This kindness is also what the Olympics should convey to us, to be open, inclusive and more united.”

Sun Zeyu, volunteer at the opening ceremony of the 2022 Beijing Winter Olympics

ing for the opening ceremony, the passion and enthusiasm that poured out when athletes from around the world entered the stadium were not rehearsed.

"We were still waving to the audience and athletes when we got off the stage," he said. "That was the longest-lasting jumping we had done, but it was also the most exciting."

He said that during the ceremony, Maud was filming the whole time with her smartphone and kept shouting *ni hao* — hello in Mandarin — to volunteers, so Sun thought he should say something back in English.

Around 300 young volunteers welcomed the delegations that night. After the opening ceremony ended, they played back the ceremony video over and over again, trying to spot themselves in the official footage.

"When I watched Tessa's video and saw myself in it, I was really excited for quite a while," Sun said. "The most memorable moment of my life was being captured by her camera. I felt really touched, too, so I thought I had to reply to her by letter."

"This very natural, simple kindness between people is really the most wonderful thing ever. This kindness is also what the Olympics should convey to us, to be open, inclusive and more united."

Sun said he had obtained Maud's personal email address, which was even more special to him than adding each other as instant messaging contacts.

"It will feel like writing a letter to a friend across the ocean," he said. "She really is a memorable friend that I made during a memorable experience."

Maud competed in the snowboarding halfpipe qualifying round on Wednesday, finishing 16th and missing out on a place in the final.

Advanced ice-making technology aids skaters

High-tech ice-making has contributed to the hot performances of athletes inside the National Indoor Stadium, the venue for figure skating and short track speed skating events during the 2022 Beijing Winter Olympics.

Chinese researchers developed a low-carbon and energy-saving ice-making system to provide athletes with high-quality ice surfaces with stable hardness. The system can properly adjust the temperatures and hardness of the surfaces, Science and Technology Daily reported on Tuesday.

Researchers at Tianjin University cooperated with seven enterprises to develop a carbon dioxide transcritical direct-cooling ice machine system to serve the Games. In the past, similar technologies at artificial ice rinks

mainly used Freon or ammonia, which posed environmental and safety risks.

The ice machine for the Games, which uses carbon dioxide as a refrigerant, is considered to be a green and energy-efficient solution.

The system can reduce energy use by as much as 50 percent, the newspaper reported.

Figure skating and short track speed skating have strict but different requirements on ice thickness and temperature, meaning that rapid conversion between the two standards must be achieved according to the Games' schedule.

Researchers managed to shorten the duration of the conversion to just two hours.