CHINA

Colleges open AI classes to meet market demand

By **XU NUO**
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Chinese universities are accelerating efforts to integrate education with artificial intelligence, with more AI colleges opening to cultivate interdisciplinary talent and more general AI courses and textbooks introduced.

Tsinghua University, one of China's top schools, recently announced it will increase its undergraduate admissions by about 150 students this year and establish a new undergraduate college for general AI education. The students will enroll in the new program, which aims to integrate AI across multiple disciplines.

The initiative pools academic resources from various fields, seeking to develop students with a solid foundation in AI, high proficiency in AI technologies and strong innovative capabilities, the university said. The move is part of Tsinghua's efforts to advance AI-related professional training and support China's push for high-level scientific and technological self-reliance and self-strengthening, according to Xinhua News Agency.

As AI rapidly evolves, reshaping education and driving socioeconomic development, the need for individuals with comprehensive AI knowledge and skills is becoming increasingly urgent.

Wang Xuenan, deputy director at the Digital Education Research Institute of the China National Academy of Educational Sciences, told China Central Television the number of students majoring in AI was estimated at more than 40,000 last year, yet "the number still falls far short of the needs of the industry."

Market consultancy McKinsey & Company estimates that China will need 6 million professionals with proficient AI knowledge by 2030.

In November 2023, a talent training initiative on collaborative research in general AI was jointly launched by the Beijing Institute for General Artificial Intelligence, Peking University, Shanghai Jiao Tong University and 13 other leading universities. Zhu Songchun, director of the Beijing institute and dean of the School of Intelligent Science and Technology at Peking University, told Guangming Daily that the plan will leverage the resources of these universities to create a training system that seamlessly connects undergraduate and doctoral education.

In September last year, Nankai University and Tianjin University introduced a general AI course through a massive open online course, or MOOC, targeting more than 100,000 undergraduates in Tianjin. The course covers AI's basic principles and history while exploring cutting-edge generative AI models and their applications in healthcare, intelligent manufacturing and autonomous driving, according to Xu Zhen, director of the department of higher education at the Tianjin Municipal Education Commission.

Zhejiang University announced in March that it will lead an upgrade of the "AI plus X" micro program in collaboration with Fudan University, Nanjing University, Shanghai Jiao Tong University and the University of Science and Technology of China. The country's first micro program integrating AI with other disciplines, it aims to bridge technology with fields such as humanities, social sciences, agriculture, medicine and engineering.

Humanoid expo

People interact with a humanoid robot from Unitree Robotics at the 21st China (Tianjin) International Industrial Expo in Tianjin on Thursday. TONG YU / CHINA NEWS SERVICE

Study reveals plateau's geographical changes

By **YAN DONGJIE**
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Chinese scientists have pieced together the dramatic geographical changes of the Luolong Basin in the eastern part of the Xizang autonomous region, revealing a period of rapid elevation and climatic transformation between 54 million and 43 million years ago.

The research, published last month in the journal National Science Review, details how the basin, initially a low-lying area about 600 meters above sea level, experienced rapid elevation to approximately 2,900 meters around 44 million years ago. This triggered a significant increase in rainfall and the establishment of distinct wet and dry seasons, according to Zhao Chenyuan, the study's first author and a doctoral student at the Institute of Tibetan Plateau Research, part of the Chinese Academy of Sciences.

"The ecological environment of the Luolong Basin before 44 million years ago was similar to today's Shangri-La in Yunnan province, with mountains and forests intertwined, rich biodiversity and an annual precipitation of nearly 1,500 millimeters, resembling the forest ecosystems of modern Yunnan and Southeast Asia," Zhao said.

The basin featured large lakes and rivers — some possibly resembling modern-day Dianchi Lake or Erhai Lake in Yunnan — teeming with primitive freshwater fish and abundant insects, researchers said.

The research team, led by academician Ding Lin, conducted extensive field investigations between 2020 and last year, collecting volcanic ash, paleosol and fossil samples.

Ding highlighted the Luolong Basin's strategic location in a transitional zone between the central and eastern Qinghai-Tibet Plateau, making it crucial for understanding plateau uplift and climate response.

"This discovery updates the spatial distribution of the Central Tibetan Valley, extending it from the central plateau to the broader eastern Xizang region, forming a biodiverse forest belt 44 million years ago," Ding said.

The findings provide new insights into the Qinghai-Tibet Plateau's uplift process, revealing that the eastern part of the Central Tibetan Valley rose before the central part.

This created a westward-sloping topography, higher in the east and gradually lowering to the west.

The plateau's uplift also profoundly influenced the Asian monsoon system, with these changes offering vital clues to East Asia's climate history, researchers said.

Spurring growth

Tea farmers wearing red scarfs from Wengjiashan village gather and participate in a custom known as *hanshan*, or shouting on the mountain, at a tea garden in Hangzhou, Zhejiang province, on Wednesday. That day is *jing zhe*, or Awakening of Insects, in the 24 solar terms, signifying nature's wake-up call. The custom typically involves the farmers raising their voices to encourage the sprouting of spring tea, expressing hopes for a bountiful harvest. The village is an important cultivation area for renowned Longjing tea.

LI ZHONG / FOR CHINA DAILY

Novel surgery helps paralyzed patients get back on their feet

'Nerve bypass' pushes spinal cord injury treatment into a new era

By **ZHOU WENTING** in Shanghai
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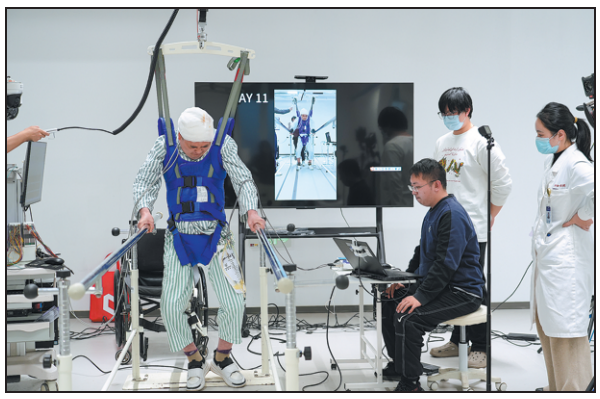

The first patient having undergone the surgery receives a rehabilitation treatment under the guidance of the medical team in Shanghai on Jan 20. PROVIDED TO CHINA DAILY

Four paralyzed individuals have undergone groundbreaking surgery to implant electrodes in their brains and spinal cords in Shanghai, creating a "nerve bypass" that has restored their ability to walk independently.

The Institute of Science and Technology for Brain-Inspired Intelligence at Fudan University, which developed the technology, said Tuesday that the patients underwent the procedures between Jan 8 and Monday at Zhongshan Hospital and Huashan Hospital in Shanghai. Their conditions have improved to varying degrees, researchers said.

With a synchronized implantation of electrodes that took just four hours, the patients were able to move their legs with the assistance of artificial intelligence within 24 hours, according to the researchers.

Based on the post-operative progress of the first three patients, individuals with severe spinal cord injuries were able to achieve independent leg control and take steps within two weeks, pushing spinal cord injury treatment into a new era of neural function reconstruction, the team said.

"The post-operative status of the patients means we have preliminarily confirmed our scientific concepts in clinical patients," said Jia Fumin, the team's lead researcher. "For the next step, we plan to optimize technology based on the data we have obtained so that the next batch of patients can experience better and faster recovery."

The spinal cord serves as a crucial pathway connecting the brain and peripheral nervous system. When damaged, motor commands from the brain cannot reach the spinal cord to control muscles, potentially leading to lifelong paralysis.

Jia's team has been working to develop brain-spinal cord interface technology to build a "neural bridge" between the brain and spinal cord. This involves collecting and decoding brain signals and providing spatial-temporal electrical stimulation to specific nerve roots, enabling paralyzed individuals to regain limb control.

Researchers said the surgery involved implanting a chip integrating electroencephalography collection in the skull and spinal cord stimulation in the spine, along with two electrodes about 1 millimeter in diameter implanted in the left and right brain and a paddle lead implanted in the thoracic or lumbar epidural space.

Jia highlighted the scarcity of global research focused on restoring lower limb mobility through such technologies, noting that decoding a patient's brain signals in real time remains a key challenge.

"Our technology currently demonstrates a delay of about hundreds of milliseconds in action after the brain sends a command," Jia said. "We aim to shrink this delay to a level almost indistinguishable from that of a healthy individual."

All four patients are men in their 30s who became paralyzed due to work-related accidents. Except for the most recent case, who underwent surgery on Monday, the other three were able to control their leg movements and walk independently with the support of suspension devices after the procedure.

"One patient, upon being able to stand again after the surgery, was so excited that he wanted to send pictures to his mother," said Ding Jing, chief of neurology at Zhongshan Hospital Affiliated with Fudan University.

As the research progressed, the team encouraged patients to attempt new movements. For example, the second patient was able to lift and extend his legs while seated on the third day after surgery, while the third patient achieved leg lifts within an hour of the procedure. By the seventh day, he could stride between parallel bars with the support of suspension devices and step over obstacles.

"They made progress day by day, which is crucial for instilling confidence in their rehabilitation," Jia said.

The first patient, a 34-year-old from Guangdong province surnamed Lin, expressed amazement at his regained abilities. He had been paralyzed for two years and had been told he would never stand again.

"I was able to walk for over 5 meters depending on my own movement intentions on the 14th day after the surgery," he said. "It was something I wouldn't have dared to dream of."

The research team said their ultimate goal is for patients to walk independently without suspension support, a process that may take about six months to a year.

Notably, sweating in the legs has been observed in the first three patients.

"This indicates that the brain-spinal cord interface has stimulated nerve reshaping within the patients' bodies," Jia said. "If this continues, the ideal scenario in the long run will be patients walking independently without our devices."

Globally, about 20 million people are paralyzed and currently rely on passive rehabilitation and care. No approved product exists worldwide for restoring the gait of paralyzed patients.

Fujian goes digital to store, process paddy

By **LIU KUN** in Wuhan
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A container-sized mobile rice processing center has begun operations at a grain reserve firm in Fuzhou, capital of Fujian province, improving the region's emergency grain support system.

With a daily capacity of 100 metric tons of paddy — enough to feed roughly 150,000 people — the facility measures just 12 meters long, 2.4 meters wide and 2.8 meters high. The processing system, housed in a standard 40-foot container, integrates multiple steps, including threshing, dehusking and milling, into one unit.

"We have combined all the necessary functions into one system," said Xie Zeliang, general manager of Hubei Tianhe Machinery Co, the company based in Ezhou, Hubei province, that developed the equipment.

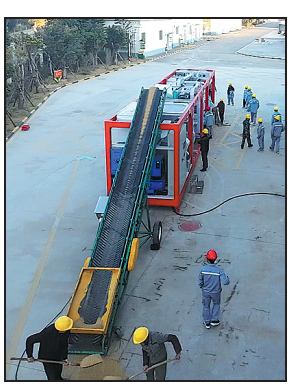
The mobile center can be activated with a single touch and is simple enough to be controlled via smartphone without technicians. Unlike conventional rice processing centers, which require major investments, long construction periods and large footprints, the mobile facility is more flexible, cost-effective and easy to deploy.

According to Xie, the system allows stored grain to be rapidly processed on-site, using capacity reserves in place of finished grain reserves.

"Our main clients include grain reserve enterprises and emergency support departments," he said.

Developed in the first half of last year, the mobile processing center produces rice that meets national staple food standards while maintaining a compact size and high output. The unit is already in use at a grain reserve facility in Fujian. The province's emergency grain support regulations encourage government-backed reserve grain enterprises to be equipped with emergency processing modules or small-scale processing devices.

While paddy can be stored for years, rice is prone to spoilage.



A mobile rice processing center undergoes testing in Fujian on Dec 18. CAO YAMIN / FOR CHINA DAILY

"In emergency situations, the ability to quickly process paddy into rice is critical," said Liu Yangbo, director of Ezhou's development and reform commission and grain bureau.

"When market supplies tighten, emergency processors can use this equipment to boost production and ease market pressures," Liu said. "In extreme cases, reserve warehouses can swiftly convert paddy into finished rice to directly supply the market."

Local governments plan to support companies with similar technologies through special funding, recruitment of research talent and favorable policy measures, he added.

Three years ago, as part of a provincial grain research project, the company assembled dedicated teams in machinery, engineering design and software development to create the mobile processing center.

"Although similar products exist, they have limitations such as insufficient capacity, incomplete processes that fail to meet food hygiene standards, or poor mobility," Xie said. "Our company will continue to upgrade its technology. For mobile processing equipment like this, we look forward to further policy support for both research and market development."

Liu Boqian contributed to this story.