



Science and Technology Daily

VOL.3-NO.82

THURSDAY, FEBRUARY 23, 2023

WEEKLY EDITION

Xuntian Telescope to Survey Space

By Staff Reporters

The Chinese Survey Space Telescope (CSST), named Xuntian in Chinese, is expected to be launched in 2023 and later conduct sky surveys on a broad scale, doing frontier research on the formation and evolution of the universe, dark matter, dark energy and heavenly bodies within the solar system and extra-solar planets.

About the size of a bus with an aperture of two meters, CSST is as high as a three-story building when erected, according to Liu Jifeng, deputy director of Joint Science Center for China Space Station Telescope.

CSST consists of two parts, a platform and an optical facility. The platform section is like a resource cabin, providing energy for the telescope's space flight and the optical facility carries its main payloads, consisting of five observation modules, which includes the Xuntian module, the terahertz module, the multichannel imager, the integral field spectrograph, and the extra-solar planetary imaging coronagraph.

The key mission of CSST is sky survey, which means observing thousands of galaxies and generating panoramic and high-definition photos of the universe. Such survey could make up about 70 percent of the operation time of CSST, said Zhan Hu, principal scientist of Xuntian optical facility.

See page 2



Beautiful China

Aerial photo shows the spring scenery of Xiling gorge, part of the Three Gorges, in central China's Hubei province. (PHOTO: XINHUA)

Editor's Pick

Digital Technology Reshaping Future Education

By WANG Xiaoxia

Digital technology has become a social necessity to ensure education as a basic human right. In recent years, this trend has motivated China to accelerate the digitalization of education to promote educational equity, improve the quality of education, and meet the needs of the labor market.

In a world experiencing more frequent crises and conflicts, promoting education recovery in the post pandemic era and realizing equitable quality education through digital education transformation are now a matter of urgency.

World's largest digital education platform

In southwest China's Sichuan province, it takes more than three hours to drive from the capital city Chengdu, to Kangding in mountainous western Sichuan. However, with the help of digital technology, it takes less than one minute for a teacher from the renowned Chengdu No. 7 High School to answer a student from Kangding.

So far, all primary and secondary schools across China have been connected with the Internet, an increase of 75 percent over 2012. More than 75 percent of schools have Wi-Fi coverage, and 99.5 percent of schools have multimedia classrooms.

Digital education platform Smart Education of China was launched on March 28, 2022, and has become the world's largest educational resource database, said the Ministry of Education (MOE) on February 9.

According to the MOE, the platform's primary and secondary education section boasts 44,000 pieces of content; the vocational education section has access to 1,173 national and provincial-level databases; and the higher education section brings together 27,000 online courses and virtual simulation experiments.

To date, the platform has received more than 6.7 billion page views and more than one billion visitors, with users covering more than 200 countries and regions on five continents.

Empowering the graduates

In a virtual classroom, students from Nanjing University of Aeronautics and Astronautics, Northwestern Polytechnical University and Guizhou Institute of Technology managed to complete the assembly of the C919, China's first domestically developed large passenger jet.

"With digital simulation and virtual reality technology, we can not only move the aircraft assembly site to the class, but also realize interaction between students from different universities through 5G communication," said Tian Wei, professor from Nanjing University of Aeronautics and Astronautics.

From compulsory education to higher education, the application of digital technology has improved the quality of lessons by providing more interesting content and immersive experiences.

Meanwhile, digital tools have upgraded the employment services to empower university graduates during the hiring season. See page 2

Sci-tech Revolutionizes Agricultural Development

By Staff Reporters

In 2022, the contribution rate of sci-tech progress in China's agriculture reached 62.4 percent, and China has become one of the world leaders in terms of sci-tech innovation in agriculture, said Zeng Yande, chief agronomist of the Ministry of Agriculture and Rural Affairs (MARA), at a recent press conference.

Zeng pointed out that major sci-tech innovation in agriculture was accelerated last year. Programs were initiated to tackle key technological problems in agriculture and much progress has been made in core germplasm resources and

cultivation of new varieties. A batch of top scientists, leading agronomists and young sci-tech talent were cultivated to optimize the China Agriculture Research System.

In addition, a set of innovation systems from national level to county level was established, said Zeng. A MARA laboratory system was formed, with 469 key laboratories from 34 discipline clusters in the field of highly efficient breeding, farmland conservation and intelligent equipment. Together with 60 national agricultural sci-tech innovation alliances, a coordinated innovation mode was built up to solve specialized, industrial and regional major key technological problems.

To guarantee the country's harvest, multiple campaigns were conducted, targeting wheat, soybean and rape respectively. Nearly a million agricultural technicians went to the frontline of agricultural production, offering targeted support for important agricultural products to increase yield per unit and reduce loss, last year.

MARA also sent a sci-tech delegation of 1,557 experts to 160 counties designated as national key counties for receiving assistance for rural revitalization, according to Zeng.

Science Communication in China Reviewed

By Staff Reporters

In terms of science communication, media outlets are continuously innovating their approaches and methods as they adapt themselves to the changes of the society.

This emerged from a report recently released in Beijing by the Research Center of Science Communication, Chinese Academy of Sciences, offering insights into the changing trends of science communication in China.

Websites, social media like WeChat and Weibo, and mobile clients developed by media have become major platforms for science communication, as they can release news rapidly and cover a broad scale of readers. Much of the sci-tech news and events are first published through WeChat and Weibo, which have the largest influence on sci-tech information in contemporary China.

According to the report, traditional media like newspapers, magazines, books and TV have great advantage in topic selection and content creation, as they have accumulated extensive expertise and collected many experts in science communication, and traditional media also take advantage of integrated development by opening new media platforms.

Government, research institutes and universities also began to release content in science communication on social media platforms.

In addition, science popularization activities attract many citizens, as do seminars, forums and exhibitions, while online sci-tech exchanges have become normal.

Short and micro videos also assist in setting up learning scenarios. The level of science popularization books have also been improved, while science picture books remain best sellers.

To cope with the challenges of science communication, the report made several suggestions, including establishing science popularization brands by technology innovation, disseminating precise knowledge by strengthening content approval, and incentivizing original concepts and products by protecting copyright.

WEEKLY REVIEW

Sequencing of Chicken Genome Completed

Chinese scientists have assembled the complete genome sequencing of a local chicken breed, which is expected to improve the understanding of the evolutionary trajectory of vertebrates and benefit molecular breeding of domestic chickens, according to the study published in the *Proceedings of the National Academy of Sciences*.

AI Computing Center Launched in Beijing

Beijing has launched its first AI computing center, the Beijing Ascend AI Computing Center, to provide computing services, based on Ascend AI hardware and software, for enterprises and research institutions.

Solar Cell Structure Optimized

Scientists from University of Science and Technology of China have developed a solution to reduce nonradiative recombination and boost power conversion efficiencies in perovskite solar cells, according to the study published in the journal *Science*.

Space-tracking Ship Sets Sail

China's space-tracking ship Yuanwang-5 departed from a port in east China's Jiangsu province on February 20 to conduct spacecraft monitoring missions. This marks the ship's first ocean voyage in 2023 and the longest one since 2020.

New Graphic



WECHAT ACCOUNT



E-PAPER



Building China into Maritime Powerhouse

Policy

By CHEN Chunyou

With a coastline stretching almost 32,000 km, China's future will forever be linked to the ocean. It is therefore inevitable that building China into a strong maritime country is a major strategic task for realizing the rejuvenation of the Chinese nation.

According to the report delivered to the 20th CPC National Congress, China will develop its maritime economy, protect the marine ecological environment, and step up efforts to build itself into a maritime powerhouse.

The marine economy is seen as the key to building strength in the marine sector, and is important for overall national economic growth. Emerging marine industries, such as seawater desalination, marine energy, and marine biopharmaceuticals have all seen rapid growth.

According to data from the Ministry of Natural Resources (MNR), China's gross ocean product reached nine trillion RMB in 2021, up 8.3 percent year-on-year, contributing eight percent of the country's GDP expansion. This was a big boost to confidence in the development of the marine economy.



An aerial view of the Sanggouwan marine pasture in Rongcheng city, Shandong province. (PHOTO: VCG)

To promote high-quality growth of China's marine sector in the new era, much work remains to be done.

Monitoring oceans is vital for Earth's survival, and satellites are the primary means of long-term and independent observation of vast oceans and their associated coastal zones. According to Lin Mingsen, director of the National Satellite Ocean Application Service under MNR, the ability of ocean-observing satellite systems should be

strengthened, so as to get precise data, which can help contribute to marine disaster prevention and mitigation.

Lin also stressed advancing the integration of AI, big data and other frontier technologies with satellite remote sensing applications, to roll out high-performance observation and exploitation technologies.

The ocean has abundant renewable energy sources, which can be captured and transformed into clean electricity.

Wu Changbin, office director at China Ocean Mineral Resources R&D Association under MNR, said the exploration and research of deep-sea mineral resources should be strengthened, while enhancing the ability to evaluate resource and environmental carrying capacity in mining areas.

Protecting and restoring marine ecosystems is essential to the renewable development of ocean resources, which is also a requirement of green development, said Li Tiegang, director general of the First Institute of Oceanography (FIO) under MNR. He calls for exploring new technologies to prevent pollution in the basin, estuary and offshore waters, and establishing a comprehensive monitoring and management system for coastal zones, islands, and natural protected areas.

As China embarks on its journey towards its second centenary goal, the maritime community with a shared future proposed by China is expected to enter a new stage.

Centering on global frontiers in marine science, FIO will engage in the global innovation network, and initiate leading international marine research programs and cooperation projects, contributing Chinese wisdom to the development of global maritime affairs and the building of a maritime community with a shared future, said Li.

Making Rural Areas More Tech Savvy

By ZHONG Jianli

Rural vitalization and development have been among China's top priorities over the years. The No.1 Central Document for 2023, recently released in Beijing, outlines major tasks to "comprehensively push" rural vitalization, including offering more technological support for farmers.

The document stressed a number of projects to drive rural vitalization, such as strengthening agricultural infrastructure construction, consolidating the support of agricultural science, technology and equipment, and building beautiful and harmonious rural areas.

"This is the 20th No.1 Central Document this century that has focused on agriculture, rural areas, and farmers, which highlighted the government's emphasis on rural development. The main messages of the document can be summarized as securing bottom lines, bolstering vitalization efforts, and reinforcing support," said Tang Renjian, minister of agriculture and rural affairs at a recent press conference.

Experts noted that the document shows the country's emphasis on modernizing agriculture and rural areas, which is also indicated in the report to the 20th CPC National Congress. That report said that, "The most challenging and arduous tasks we face in building a

modern socialist China in all respects remain in our rural areas."

To secure the stable production and adequate supply of grain and other important agricultural products, the document underlined efforts to keep annual grain production over 650 billion kilograms, expand the acreage of soybeans and oil crops, and develop modern protected agriculture.

Another highlight of the document is that China will endeavor to build an agricultural science and technology innovation system with clear tier, division of labor and cooperation, and moderate competition, to accelerate breakthroughs in cutting-edge technologies.

It says the country will support the building of national laboratories, manufacturing innovation centers and other platforms in the agricultural field, strengthen the construction of long-term observation and experiment stations for agriculture, and improve the support mechanism for basic research on agricultural science and technology.

In addition, to develop green agriculture, the document calls for establishing a sound collection, utilization and treatment system for agricultural waste, developing a monitoring system for agricultural ecological environment protection, and preventing the illegal introduction of alien and invasive species.

SOE-run Medical Institutions Gain New Momentum

By CHEN Chunyou

Medical institutions run by state-owned enterprises are becoming an important part of China's healthcare service system.

In order to boost their development and allow them to play an active role in the Healthy China Initiative, an action plan was released by the State-owned Assets Supervision and Administration Commission and 12 other departments.

Historically, these medical institutions are scattered around the enterprises' projects or in remote areas. They spe-

cialized in one or two fields and were short of comprehensive services, as well as being less competitive when compared with their counterparts.

According to the action plan, they will be treated the same as government-funded hospitals, and will receive support in purchasing large medical facilities.

As a complement to the government-funded hospitals, SOE-run medical institutions are expected to provide basic medical services, and offer diagnosis and treatment for acute critical diseases, while offering help in emergency

medical rescue and foreign aid, as well as serving rural and border areas.

In addition, these SOE-run medical institutions are encouraged to cooperate with overseas hospitals, research institutes, universities, and pharmaceutical enterprises, so as to promote medical technology innovation, and the commercialization of research achievements.

In recent years, China has attached great importance to the reform of medical institutions.

In 2021, a plan for high-quality development of public hospitals between

2021-2025 was released, which proposed establishing a high-level public hospital network. In areas with weak and scattered medical resources, it is an option to intensify local medical strength and establish a medical network through SOE-run medical institutions.

Likewise, in this action plan, eligible medical institutions are supported in establishing medical alliances, so as to make full use of their resource advantages and sharpen respective strengths, before integrating into the local medical system and better serving local development.

By LI Linxu

As part of its efforts to strengthen intellectual property rights (IPR) protection, China is leveraging the role of national IPR protection centers to provide one-stop services.

In 2022, China approved the construction of 10 national IPR protection centers and fast IPR service centers, responsible for offering fast and coordinated IPR protection focusing on industries such as advanced manufacturing, new materials, smart manufacturing and pharmaceuticals.

To date, a total of 97 national IPR protection centers and fast IPR service centers have been set up in China. Of particular note is that a large proportion of the newly approved centers are based in the central and western regions.

Yangtze Optical Fibre and Cable Ltd. is one of the beneficiaries of this IPR initiative. The company has recently applied for and successfully been awarded three patents within one month.

In the past, the process usually took one to two years. The significant

time saving has helped the company successfully land a contract worth 40 million RMB.

The markedly improved efficiency can be credited to China (Wuhan) Intellectual Property Protection Center, which has provided a precise one-stop service for the company.

In recent years, China has rolled out a series of IPR protection policies and measures to beef up IPR protection, to better serve the country's high-quality development and spur innovation.

National IPR protection centers are important to achieve fast and coordinated protection of IPR, said an official from the National Intellectual Property Administration (NIPA), adding that these centers can provide integrated IPR protection services for both domestic and foreign market entities, such as quick IPR pre-examination, verification and enforcement.

These IPR protection centers and fast IPR service centers vowed to treat domestic and foreign entities equally and offer the same standard IPR protection service, according to NIPA.

Demo Counties for Economic & Intensive Use of Natural Resources Released

By LI Linxu

In its latest push to promote high-quality development, China has released the first batch of national demonstration counties for economic and intensive use of natural resources.

A total of 258 counties or cities were selected from 373 applicants, according to the Ministry of Natural Resources (MNR).

The successful applicants can be further divided into three categories, with 183 for land resources, 57 for mineral resources and 18 for marine resources.

Hebei province, Henan province, Shandong province, Hunan province, and Jiangsu province are among the top performers in the number of successful applicants.

Zhangjiagang, a county-level city of Jiangsu province, is one such model city in land use. While actively optimizing the layout of industrial land, the city

has rolled out differentiated tax, water and electricity measures for industrial projects and enterprises, in line with their assessment results in economic and intensive use of resources.

The construction of national demonstration counties is a follow-up measure in the implementation of the 14th Five-Year Plan for Natural Resources Protection and Utilization, said an official from MNR.

These counties or cities are tasked with promoting green and low-carbon ways of production and life, so as to set benchmarks in the economic and intensive utilization of land, mineral and marine resources for their counterparts.

Of particular note is that in the 20th CPC National Congress report, China vowed to implement a comprehensive conservation strategy, conserve resources of all types and use them efficiently.

Meanwhile, the report also pledges

to boost green and low-carbon industries and improve the system for market-based allocation of resources and environmental factors.



Zhangjiagang's Jinghu Lake Ecological Park. (PHOTO: VCG)

Focusing on the economic and intensive use of natural resources, innovative practices will be encouraged in these counties, according to MNR.

Xuntian Telescope to Survey Space

From page 1

Li Ran, researcher at National Astronomical Observatories of the Chinese Academy of Sciences, said that 30 detectors are installed in the Xuntian module, with a total of 2.5 billion pixels. Filters on 18 detectors could capture images of

heavenly bodies at different bands, and the other 12 detectors are used to conduct slitless spectrographs, with each exposure acquiring the spectral information of at least 1,000 heavenly bodies. During the survey period, the Xuntian module will cover 40 percent of the en-

tire sky and collect high-quality data of nearly two billion galaxies.

CSST is also good at detailed observation, and the other four modules of the optical facility part are all used for that purpose. Specific observation, like extra-solar planet probes,

will be conducted.

The China Space Station Tiangong will act as the home port of CSST, but the telescope will fly independently in the same orbit as the space station, and keep a significant distance from it during its normal observations. When CSST needs supply or maintenance, it will dock with the space station, which not only guarantees its normal operation in its ten-year lifetime, but also extends its in-orbit service time.

Digital Technology Reshaping Future Education

From page 1

On March 28, 2022, the national employment service platform for college students was launched, providing a wealth of policies, job information and guidance services. In 2022, more than 13.7 million jobs were presented on the platform, helping 31.6 percent of college graduates find jobs, a 7.6 percent increase over 2021.

Urgent need of the post-pandemic world

Thanks to the wide coverage of Internet infrastructure and digital platform and resources, effective distance learning solutions have allowed Chinese teachers, students and policymakers to continue with the national lesson plans during the COVID-19 pandemic.

However, countries without necessary ICT infrastructure and well-resourced digital learning systems suffered the greatest education disruptions and learning losses. This situation left as many as one-third of students around the world without access to learning dur-

ing the school closures for more than a year, according to UNESCO.

Education transformation is urgently needed, and the power of digital transformation must be fully harnessed to ensure that quality education and lifelong learning are made available to all as a common good.

The World Digital Education Conference, recently held in Beijing, called for the international community to strengthen dialogue and exchanges, deepen practical cooperation and work together to promote the digital transformation of education and the realization of Education 2030 Agenda.

At the conference, the World Digital Education Alliance was initiated jointly by the Chinese government, universities, institutes and enterprise, under the auspices of international and regional organizations, including the UNESCO. The alliance is open to all stakeholders around the world to promote the sharing of digital education resources, strengthen interconnection and tackle challenges.

Friends in Need Are Friends Indeed

Voice of the World

Edited by GONG Qian

As of February 20, the death toll in the 7.8 magnitude earthquake and its aftershocks that struck Türkiye and Syria has surpassed 41,000, according to the *Washington Post*. At this tragic time the world has rallied to assist the beleaguered countries, dispatching rescue teams and organizing aid campaigns.

China is among dozens of countries that have sent search teams to help in the rescue efforts.

A Chinese cargo plane reportedly carrying 18 tons of medical supplies, tents, first aid kits, blankets, winter clothes, and food materials landed at Damascus International Airport on February 15.

Türkiye's Ambassador Abdulkadir Emin Önen said on February 14, that 254 tons of aid materials have been sent from China, according to Anadolu Agency (AA), a Türkiye-based news outlet.

Several Chinese search and rescue teams were dispatched to join local and international groups to help save those still trapped in rubble. Civil society rescue teams, including China's Blue Sky Rescue Team, a civil relief squad, also actively participated in the joint rescue mission.

Türkiye set up a crisis desk at its embassy in Beijing after the quakes and mediated the dispatch of Chinese rescue teams, Önen said at an airport warehouse in Beijing where humanitarian aid is collected, AA reported.

Chinese companies operating in Türkiye are also taking actions to provide aid. For example, Zoomlion and Sany group, Chinese construction machin-



A Chinese rescue team, along with international groups, saved a man and a child trapped in rubble in Türkiye on February 9, 2023. (PHOTO: VCG)

ery manufacturers, have immediately sent their machinery to the earthquake zone to support rescue operations.

Additionally, Chinese people working for different Türkiye-based Chinese companies have joined hands for different tasks to facilitate search and rescue operations by Chinese professionals.

The embassy of Türkiye in China extended its thanks and gratitude to China on social media platforms. The Chinese people are continuously sending us offers of help in a moving spirit of solidarity with the Turkish people,

Önen told *Global Times*.

"I would like to thank once again all the friendly and brotherly countries who have been collecting aid for our nation day and night, supporting our search and rescue efforts with their teams," said Turkish President Recep Tayyip Erdogan in a televised video to the World Government Summit.

"Witnessing the solidarity among our nations, we have every reason to believe that Turkish-Chinese relations will continue to flourish in the period ahead," Önen said.

In an interview with CGTN, for-

mer Syrian Ambassador to China Imad Moustapha said China has always been generous and supportive towards Syria. He was impressed and grateful for the solidarity and sympathy that Chinese people have already shown with their Syrian brothers and sisters. This shows, to a great extent, the moral fabric of Chinese people and how China always stands with other friends who are at their moments of difficulties, said Moustapha.

"As we always say 'A friend in need is a friend indeed', [and] China is a friend indeed to Syria," said Moustapha.

Green Growth in Action

Edited by GONG Qian

"Green" defines the future of the world. To underline this vision, China released a white paper in January, focusing on its green development in the past decade from seven aspects, including a green territorial configuration, adjustment and improvement of the industrial structure, application of green production methods, and eco-friendly living.

With its great efforts and commitment to green growth, China has won widespread praise for its actions and achievements in green development.

A global clean energy champion

China has emerged in the last decade as a global clean energy champion-

help by government support on a grand scale, said Grid website. China invests 546 billion USD in clean energy, which is nearly four times the amount of U.S. investments, according to a new report from research firm BloombergNEF (BNEF) released in January 2023.

"China has managed to nurture these really integrated, efficient value chains for making things like solar panels, [and] for making things like battery cells," Antoine Vagneur-Jones, head of trade and supply chains research at BloombergNEF, was quoted as saying by *Scientific American*. Vagneur-Jones thinks that China's still going to remain dominant in this field for the next decade or more.

It is true, as the facts show, that China has been accelerating building of solar and wind plants on a massive scale. The country dominates over 80 percent of the global solar-manufacturing market in all stages of production including polysilicon, ingots, wafers, cells and modules, according to the International Energy Agency. Therefore, its green energy growth is clear, while China's renew-

able electricity share leapt from 16 percent in 2005 to 28 percent in 2021.

The Grid said owing to China's more than a decade of efforts, the country has reaped economic rewards for its foresight: Chinese companies now dominate many of the clean energy industries that the world is finally embracing in the fight against climate change.

Green consumption aids green goals

China issued a plan in January 2021 to promote green consumption to balance economic growth, along with its goal to become carbon neutral. The plan detailed measures in sectors ranging from food, clothing and housing, to transport, tourism and renewable energy.

Such a shift to consumption-led growth will boost growth prospects in the short term and deliver high-quality expansion in the long run, according to IMF. "This would not only benefit China, but also the world," said IMF.

Notably, China is going all out to embrace electric vehicles. Sales of new-energy vehicles almost doubled in China in 2022, even as the global car sales remained sluggish. "More than four million of new-energy vehicles sold were all-electric vehicles, five times more than that sold in the U.S. in 2022, cementing China's place as

the world's top EV market," Fox Business reported.

Big role in cooperation on sustainable development

China is a key party to various global climate governance frameworks, including the Paris Agreement, in which China commits to reaching carbon neutrality by 2060.

This marks China's determination to commit to, and invest in, its long-term vision of collective global climate action to control the global temperature rise, said Lars Faeste, a managing director and senior partner at Boston Consulting Group.

China holds the presidency of the ongoing United Nations (UN) Biodiversity Conference (COP15) and hosted the phase-one meeting in Kunming, Yunnan province in 2021 — a clear demonstration of China's leadership and commitment to biodiversity, said Elizabeth Maruma Mrema, executive secretary of the Convention on Biological Diversity.

In addition, China created the South-South Climate Cooperation Fund in 2015 and pledged to strengthen international climate cooperation. In 2022, China declared that it would increase green development jointly with BRI countries in priority areas including infrastructure, energy and climate change.



Wind turbines in Guizhou province. (PHOTO: VCG)

Hi! Tech

New All-natural Heat-resistant Aerogel

By Staff Reporters

Scientists from the University of Science and Technology of China have created an all-natural wood-inspired aerogel.

They used a method of surface nanocrystallization, with natural bio-

mass and minerals as ingredients, to make the surface-inert and weakly interacting wood particles better assemble to construct the aerogel. The resulting wood-inspired aerogel has a channel structure similar to that of natural wood, along with good biodegradability.

This material features a remark-

able performance of thermal insulation and fire retardancy. It can withstand a high-temperature flame of 1,300 °C and not be burned through in at least 20 minutes.

Even if it is on fire, the smog emission amount produced by this such all-natural wood-inspired aerogel is less

about 91 percent of that produced by natural balsa wood, which greatly reduces the damage to the human body in a real fire situation.

The low energy consumption and emissions of the preparation process and its natural ingredients make the aerogel more biodegradable, sustainable, and environmentally friendly. This kind of material will be an ideal substitute for existing commercial thermal insulation materials.

AI Chatbot : Language Processing Oracle Comes with Risks

Opinion

By TANG Zhexiao

ChatGPT, the new language processing AI developed by OpenAI, has gone viral worldwide and is making waves in the tech industry.

Standing for AI tech of Generative Pre-trained Transformer, ChatGPT is an advanced AI chatbot designed to generate human-like text, and used to answer questions, translate languages, compose music, generate stories and poems, and write code.

Bloomberg described it as a thrilling, vexing, ontologically mesmerizing new technology which can solve all your problems and answer all your questions, "or at least it will try to."

"ChatGPT shows that the AI revolution has arrived," said an article in *Fortune*, an American multinational business magazine.

Despite its powerful capabilities, ChatGPT and other generative AI chatbot also has several limitations and may pose several practical limitations and legal risks.

One problem, which its creator OpenAI has conceded, is that ChatGPT is not completely reliable yet.

"It's a mistake to be relying on it for anything important right now," OpenAI Chief Executive Sam Altman tweeted, adding that they have lots of work to do on robustness and truthfulness.

Sometimes, it offers answers that are precise and authoritative, but utterly wrong.

According to the *Washington Post*, "What it's really doing is spitting out text that reads well and sounds smart

but might be incomplete, biased, partly wrong or, occasionally, nonsense."

What's more, experts worried that such AI systems could lead to disinformation and be used for nefarious purposes.

Jeff Hancock, professor of communication at the Stanford University, said according to a report released by Stanford Internet Observatory, once bad actors are able to use language models to run influence campaigns, that will be able to generate massive amounts of content quite cheaply, and potentially develop novel tactics for large-scale persuasion.

"Unfortunately some will use this technology to exploit the flaws in human nature, deliberately target people with false information, undermine democracy and explore new ways to advance the pursuit of evil," said Microsoft's Vice Chair and President Brad Smith.

When it comes to any modern AI tech, data is always the key. If the data is biased, inaccurate, or has sensitive information, the results will reflect those issues too.

Other risks such as biased content, personal privacy disclosure and AI-assisted plagiarism should also be considered by concerned companies, governments and legislative institutes.

Therefore, it is critical to use AI models like ChatGPT responsibly and with appropriate protection. Robust data safeguarding and privacy policies must be in place to overcome these potential dangers.

Today, AI is introducing a new era, even more significant than that brought by the Internet, and ChatGPT is only the tip of the iceberg. When enjoying the significant changes AI is bringing, we also need to think about how to use it instead of being used by it.

Difference Brings Creativity, Innovation

Research Box

Edited by QI Liming

Difference is intrinsically good, a vital force behind creativity and innovation, and an essential ingredient for international competition. The troubled U.S. could learn from its differences with China, rather than simply challenge them.

That's the opinion of David Dodwell, CEO of the trade policy and international relations consultancy Strategic Access.

Dodwell, who focuses on developments and challenges facing the Asia-Pacific over the past four decades, told the South China Morning Post recently, that he has a chronic, deep-seated discomfort with U.S. President Joe Biden's call for the world's democracies to wage war on different regimes, particularly when used as a pretext to isolate and decouple from China.

Dodwell said, his discomfort comes not simply from the difficulty of defining

a democracy, Wikipedia defines dozens of types of democracy, many of which stray far from the template Biden is starting from, but because a precondition for human survival in this increasingly crowded world is a tolerance of difference.

It becomes a negative force only when people or governments try to impose those differences on others, and this is not something China has done, said Dodwell, who believes that rather than being morally outraged at those alien customs and beliefs, it should be measured by their effectiveness in managing the conflicts that arise in crowded communities, and in encouraging civic-mindedness and community cooperation.

He said difference should not just be tolerated; it should be treasured as part of life's rich tapestry, and as a critical ingredient of healthy competition.

China provided an alternative development path, challenging the idea that modernization must equal Westernization, and there is no harm in this. If it leads to a fresh examination of governments' strengths and shortcomings, so be it. Competition can be no bad thing, said Dodwell.

China, Cambodia Cooperation Yields Impressive Results

From page 1

China has built 4,000 km roads and eight bridges crossing the Mekong River in Cambodia, as well as installing 20,000 km optical cables. In 2022, the total import and export revenue of Chinese-invested Sihanoukville Special Economic Zone was nearly 2.5 billion USD, an increase of 12 percent year-on-year. In addition, around 30,000 jobs have been created.

Statistics show that trade volume between the two countries hit a record high in 2022, expanding 17.5 percent year-on-year to 16.02 billion USD.

In the same year, the Cambodian government approved 186 new investment projects with an agreed investment amount of 4.032 billion USD, of which China's investment accounted for 42 percent, making it the largest source of investment in Cambodia.

Since the China-Cambodia free trade agreement and the Regional Comprehensive Economic Partnership came into effect in January, 2022, the liberalization and facilitation of trade and investment between both countries have been strengthened, said Shu Jueting, spokesperson of the Ministry of Commerce.

4

LIFE IN CHINA

Dialogue

By LONG Yun & BI Weizi

"It is a blessing and a gift to be an educator, because it is a big responsibility to educate the younger generation, the future of the world," said Antoine Barnaart, director of Confucius Institute of Queensland University of Technology, Australia. Barnaart is a highly respected expert in the field of education, having dedicated nearly 40 years of his life to teaching and managing higher education and vocational programs, both in Australia and internationally.

In a recent interview with *Science and Technology Daily*, the Australian educator shared his insights on topics like cross-cultural communication and vocational education.

Education, the most powerful aid
With a wealth of experience and a deep commitment to his work, Barnaart has made a significant impact on the lives of his students and communities in the Pacific Islands.

Barnaart is specially concerned about the fate of people living in the Pacific Islands countries, who are highly vulnerable to the impact of climate change. He has been committed to helping people, especially the younger generation in these countries, such as Kiribati and Fiji, receive the right type of aid and support, in order to help them overcome the challenges they face.

From his perspective, "Education, ideas, and knowledge can be the most powerful type of aid, rather than focusing too much on building infrastructure, which can have a limited lifespan, and requires expertise and resources to maintain." Barnaart believes that "clear and uncomplicated" education and support can empower these communities to build a brighter future for themselves and their families.

He has seen the first-hand challenges faced by the younger generation living in Kiribati, where employment opportunities are limited, forcing many

Endless Power of Education



Professor Antoine Barnaart. (COURTESY PHOTO)

young people to look for study and work opportunities overseas. He also recognizes that young people need more than just technical skills to be successful in today's competitive global workplace. "They also need strong language skills, core employability skills, and cross-cultural skills," he said.

Barnaart emphasizes the role of learning foreign languages in communicating values and cultures. "Studying both language and culture allows you to know more than just words and grammar. It allows you to know what to say, when to say it, how to say it, and when to say nothing," said he.

Best time in his professional life
From 2004 to 2007, Barnaart led the Australia-China Vocational Education Project in Chongqing. "It was one of the best times in my professional life," he said.

His experience working in China was extremely fulfilling as he found

his Chinese counterparts highly motivated, eager to learn and open to new ideas. Moreover, he was impressed by the fact that Chinese central and municipal governments provided substantial financial and policy support for the project.

The joint efforts of the teams from Australia and China have generated many tangible signs of progress. According to his counterparts in Chongqing, the Australian team helped "change their mindset and perspective" regarding how their system and school could improve vocational education outcomes.

"Now, in many areas of China, I believe vocational education is world-class," Barnaart said. Nowadays, he is impressed by the balance between practical and theoretical training in China's vocational education system, especially in Chongqing. He applauded the policy-based approach to training and a constant focus on competency based assessments.

At the same time, the vocational schools and colleges in China are well-equipped with the necessary equipment and facilities to provide hands-on training for every individual student. According to Barnaart, the establishment of closer partnerships with industry has resulted in a highly dynamic learning environment that prepares students well for careers in their respective fields. These close partnerships have been critical in ensuring that the provided education meets the needs of industry and that graduates are equipped with the necessary skills for the workforce.

A Life-long educator
Despite reaching retirement age, Barnaart still feels the excitement and thrill of being in a classroom and interacting with students. His love for education runs so deep that he has made a choice to be a life-long educator.

One of the reasons why this Australian is so passionate about his work is that he believes teaching is a continuous learning journey. Every year is different, and he is presented with new challenges and opportunities for growth and development.

Being a life-long educator is not just a job or career choice, but a calling that will drive him forward. He finds joy in sharing his knowledge and experiences with students, and the friendships he has forged along the way make the journey even more meaningful.

In 2007 in the Great Hall of the People, Beijing, Barnaart was awarded the Chinese Government Friendship Award, by the Government of the People's Republic of China, in recognition of an outstanding contribution to the development and construction of China by a foreign expert.

This article is also contributed by Dr.BI Liangliang from the Chinese Association for Science of Science and SET Policy.

Chinese Language, A Cross-cultural Bridge

By YANG Xian

Oath of the Peach Garden and *Cao Chong Weighing the Elephant* are famous classic stories in *Three Kingdoms*, one of the best-known Chinese classical novels. Now, fans of Chinese culture will have easier access to these classic stories and the intangible cultural heritages behind them through an online program.

Three Kingdoms Intangible Cultural Heritage online program, part of the Chinese Bridge program, formally commenced recently. The course has attracted 302 students from 28 countries, all keen to experience China's intangible cultural heritage.

The Chinese Bridge online program is divided into three modules: Cultural Topic, Intangible Cultural Heritage Topic, and Language Course, aiming to integrate Chinese culture into language teaching, enhance international students' understanding of Chinese history, and improve their ability to use Chinese.

In the experiential classes, students will watch demonstrations of intangible heritage techniques such as five-animal martial arts movements, exploring the essence of Chinese culture.

Kuziva, a student from Zimbabwe, has signed up for this Chinese Bridge project. "I want to learn Chinese better through this program and apply it to daily life. Also, I like Chinese traditional cul-

ture and hope to learn more about intangible heritage knowledge," she said. An Indian student said that the program promotes cross-cultural communication, and he hopes that more Indian people and students will visit China to experience the charm of Chinese traditional culture.

Yanagi Motoko, a Chinese teacher from Osaka, Japan, who has been teaching for many years, saw the introduction of this program through her social network and registered to participate. A Vietnamese student contacted the organizers through the WeChat public account and introduced 136 Vietnamese students to the program. These international students showed a strong interest in Chinese culture. They said that Chinese culture is the only culture that has not experienced a break, and its time-honored history fascinated them.

This program was hosted by the China Foreign Language Exchange and Cooperation Center and organized by Wuhan University of Science and Technology. Lv Yong, vice president of Wuhan University of Science and Technology, hoped that the program can promote cultural exchanges between China and foreign countries, and enhance the bridge of culture and friendship.

This article is also contributed by Wuhan University of Science and Technology.



An international student experiences the Chinese Bridge Online program. (PHOTO: Wuhan University of Science and Technology)

Traditional Eastern Wisdom

Origin of Soybean Domestication

By BI Weizi

Soybean, called "Shu" in ancient times, is one of the five traditional cereals in China, not only as a major edible oil crop but also an important source of plant protein. China is recognized as the origin of soybean domestication by domestic and foreign academics.

Around 9,000-7,000 years ago, the ancestors of the Pei-Li-Gang culture, which was distributed in the middle reaches of the Yellow River and the

Huaihe River basin, already began to make use of wild soybean plants. By 5000-4000 years ago in the Longshan era, a late Neolithic culture in the middle and lower Yellow River valley areas of northern China, from about 3000 to 1900 BC, soybeans had shown distinctive characteristics of domesticated species. Charred soybeans of sizes between wild and cultivated varieties dating from 4000 years, were unearthed in 2019 at sites such as Wadian in Yuzhou, Henan province, Taosi in Shanxi prov-

ince, and Zhouyuan in Shaanxi province. After the Xia and Shang Dynasties, the size of soybean seeds increased significantly, and this domestication process continued into the Han Dynasty (202BC-220).

After the Han Dynasty, rice and wheat replaced soybeans as a staple food, and soybeans were used in a wide range of applications as a side dish and for seasoning. During the Western Han Dynasty, people began using soybeans as raw materials for soy sauce, which

gradually developed into soybean sauce. Tofu is said to be invented by Liu An, the King of Huainan state in the Western Han Dynasty.

Soybean domestication was an important creation of ancient Chinese. It was introduced to Korea from northern China around the Qin Dynasty, and then to Japan, and only after the 18th century did the beans gradually spread to Europe and the United States, becoming one of the world's major oil and feed crops.

China-ASEAN to Promote Sci-tech Cooperation

By CHEN Peng & TANG Zhexiao

China looks forward to working together with ASEAN in the near future to review jointly plans for cooperation, so as to effectively promote China-ASEAN sci-tech exchanges and cooperation, Chinese Ambassador to ASEAN Hou Yanqi, said on February 17 at the awards ceremony of the 2022 China-ASEAN Innovation and Entrepreneurship Competition.

In her remarks, Ambassador Hou congratulated the winners and expressed China's willingness to work together with ASEAN to make the competition a shining example, promote the industrialization of innovation and entrepreneurship achievements.

"It is believed that this Competition will make positive contributions to promoting the building of an even closer China-ASEAN community with a shared future," said Hou. During the Awards Ceremony, Hou and Deputy Secretary-Gener-

al Satvinder Singh jointly presented the trophies and certificates to the winners of the competition.

Two first prizes, six second prizes and 12 third prizes were awarded, and 10 groups of creative stars and cooperation stars were selected among 71 competitive groups.

The success of the competition has fully demonstrated the vitality and potential of science and technology innovation in the region, said Singh.

He added that ASEAN also hoped to work closely with China to strengthen the brand of this Competition and attract more young people to participate in ASEAN-China sci-tech exchanges and cooperation.

Co-hosted by China's Ministry of Science and Technology and the ASEAN Secretariat, the competition mainly focused on key industrial fields including modern agriculture, bio-medicine and health, digital economy, energy conservation, and environmental protection.

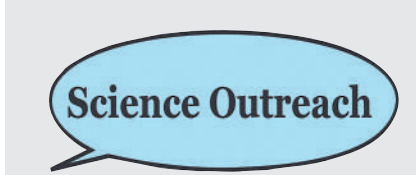
Photo News



Haihong Wetland Park

Photo from January 5, 2023 shows a scene of Haihong Wetland Park, Kunming, Yunnan province. Located on the north shore of Dianchi Lake and west of the mouth of the Panlong River, Haihong Wetland Park is not only a popular place for leisure activities, but also a lakeside ecological barrier of Dianchi. Recently, the colorful leaves of the Metasequoia, dawn redwood trees, in Haikong Wetland Park are attracting many tourists from across the country. (PHOTO: XINHUA)

Early-onset Alzheimer's Disease



By Staff Reporters

A team led by Jia Jianping, of the Innovation Center for Neurological Disorders at the Capital Medical University's Xuanwu Hospital in Beijing, claimed to have discovered the world's youngest Alzheimer's disease patient, according to a study published in the *Journal of Alzheimer's Disease* recently.

The 19-year-old patient from Beijing was diagnosed with Alzheimer's disease after exhibiting mild brain atrophy, before which he had been suffering from short-term memory loss for two years.

Alzheimer's disease, commonly known as dementia, affects mostly elderly people, but in recent years, many cases of young patients in their twenties have been identified. Is Alzheimer's disease "targeting" younger people? Professor Zhang Zhuo Bo, director of the Department of Neurology at the Fourth Affiliated Hospital of Harbin Medical University, told *Science Popularization Times* that some young patients with Alzheimer's disease have been detected earlier due to the advancement of detection methods and technology, but they are individuals cases and do not necessarily mean early-onset Alzheimer's disease.

Early-onset Alzheimer's disease, which affects people younger than 65,

is considered uncommon as it accounts for only 5-10 percent of all known cases, Zhang said, adding that almost all patients younger than thirty have pathological gene mutations.

According to Dr. Zhang, the main contributing factors for many young people experiencing memory loss are unhealthy lifestyle, chronic stress or overwork rather than pathological causes. However, one should go to see a doctor for further examination if presenting symptoms such as difficulty recognizing directions, remembering the names of familiar people, or confusion about time and space, when in good health.

Previously, Jia's team conducted a large population-based cohort study in China to look at the effects of different lifestyles on memory function in the elderly over a 10-year period, shedding new light on the prevention and mitigation of age-related memory decline.

The research results show that a healthy lifestyle can significantly delay memory loss, which includes consuming seven of the 12 diets of cereals, legumes, vegetables, fruits, meat, eggs, nuts, dairy products, moderate amounts of salt, oil, fish and tea every day; no less than 150 minutes of moderate intensity or no less than 75 minutes of vigorous physical activity per week; no less than two social activities per week; time allocated to reading, thinking and writing each week; no smoking or alcohol.

"Increasing awareness of a healthy life style will have a significant impact on the brain health of our entire population," said Zhang.