

Progress in AI Legislation

Policy

By GONG Qian

The governance of artificial intelligence (AI) has become a common concern to the world. Some countries have successively enacted laws and regulations to regulate its development. On October 18, China launched Global AI Governance Initiative, which systematically outlines China's proposals on AI governance from three aspects, namely, the development, security and governance of AI. *Science and Technology Daily* invited legal expert Gao Shaolin to discuss how China is contributing to the governance of AI in relation to the rule of law. Gao is a consultant of the Association of Legislation of China Law Society and an expert consultant of the Legal Artificial Intelligence Research Center of Peking University.

S&T Daily: The U.S. released the *Blueprint for an AI Bill of Rights in October 2022*. The *European Parliament voted to approve its own draft proposal for Artificial Intelligence Act in June this year*. What is the progress of AI legislation in China?

Gao: Network, data, algorithms, computing power and application are the five pillars of AI development. China has gradually been making progress in these areas.

As for the Internet, China has formulated the Cybersecurity Law, providing a legal basis for the safe and stable development of Internet security.

In terms of data, China has enacted a series of laws and regulations, including the Data Security Law and the Personal Information Protection Law, and revised the Regulations on Government Information Disclosure.

In regard to algorithms, China has

enacted the Anti-Monopoly Law and the Anti-Unfair Competition Law. Additionally, relevant departments have also formulated departmental regulations and normative documents such as the Internet Information Service Algorithmic Recommendation Management Provisions and the Interim Measures for the Management of Generated Artificial Intelligence Services.

In the light of computing power, China has made an overall plan on digital China construction, and issued a three-year action plan for the development of new data centers.

As for application, China formulated some basic laws including the E-Commerce Law. The country also issued some departmental regulations on mobile Internet application information service management and online ride-hailing service management and other fields.

S&T Daily: Based on what you have mentioned, what are the characteristics of China's AI legislation?

Gao: On AI legislation research, China started relatively early. With the development of the Internet, big data, AI and other technologies, China has comprehensively adopted normative methods including laws, administrative regulations, local regulations, and departmental rules, to respond to the needs of AI governance in a timely manner.

The emergence of a new disruptive technology will always have a certain impact on the existing social order and even legal order. With regard to the new problems brought by the technological revolution, China has adopted an active, inclusive and prudent regulatory strategy.

The main features embodied in China's AI legislation are as follows:

First, adhering to the leadership of the Communist Party of China (CPC). The CPC Central Committee has issued relevant guidelines and policy plans in a



Robots at the 2023 World Artificial Intelligence held in Shanghai in July, 2023. (PHOTO: VCG)

timely manner, pointing out the direction for AI legislation.

Second, allowing complete development of the comprehensive function of the legal system of norms with Chinese characteristics. This means that laws, administrative regulations, local regulations, departmental regulations, local government regulations and normative documents interact with each other. Meanwhile, it is important to play the guidance role of departmental regulations and the normative document issued by the State Council.

Third, adhering to a problem-oriented approach, adopting policies on a case-by-case basis and thus making steady progress. At the early stage of the development of AI technology, instead of rushing to comprehensively enact AI legislation, China will formulate relevant laws, regulations, rules and normative documents to address the prominent issues.

Fourth, ensuring that local legislation plays a vital part in exploring the unknown, thus accumulating experience for national legislation.

S&T Daily: What principles do you think China should adhere to for AI legislation?

Gao: I think, China should uphold the following five principles:

First, encouraging innovation. AI legislation must take this as the primary principle, so that China can lead the world in this area.

Second, promoting development. It is necessary to create a favorable environment for the development of AI under the rule of law, and to promote the wide application of AI in all fields of society.

Third, the principle of ensuring safety. Safety is the bottom line of AI development, and it is necessary to implement the overall national security concept, ensure network security and data security, and protect personal privacy.

Fourth, safeguarding the public interests. AI legislation should promote technology for the good, so as to make AI benefit the general public and improve social wellbeing.

Fifth, coordinated promotion of domestic rule of law and foreign-related rule of law. China should work with other countries around the world to grasp the new trends of AI development, deepen international exchanges and cooperation, promote the innovative development of the AI industry, accelerate the building of a community with a shared future in cyberspace, and jointly create a happier and better future.

Youth on Tech

Editor's Note: *Youth on Tech* is a new program produced by *S&T Daily*. We invite young scientists and industrial insiders from around the world to discuss trending sci-tech topics, aiming to promote understanding among youth worldwide and work together to make our planet a better place. Until now, we have finished six episodes, including pandemic prevention, AI and human intelligence, lunar exploration, digital technologies in sports, young people's growth with the Belt and Road Initiative, and science fiction and sci-tech innovation.

Sci-Fi Inspiring Innovation

By CHEN Chunyou

The 81st World Science Fiction Convention concluded in Chengdu in Sichuan, northwest China, on October 22. Chengdu became the second city in Asia and the first in China to host the convention attended by sci-fi fans and industrial insiders from across the world.

Sci-fi has always been a popular genre worldwide, providing inspiration for innovation and progress. Though it has been two centuries since the first sci-fi literature was created, its popularity remains unabated. What makes it such an enduring global phenomenon? How do sci-fi and science and technology influence each other? Three experts shared their insights in recent *Youth on Tech* hosted by *S&T Daily*.

A window to future world

A lot of new products and technologies that people enjoy today trace their origins to the realm of sci-fi such as mobile phones, 3D printing, automation, real-time translation and video calls. These have enriched modern life, making it intelligent.

"Sci-fi is the first outlet to imagine the future world, through which people participate in this process of innovation," said Carlos-Andres Palma, a physicist at the Institute of Physics, Chinese Academy of Sciences.

According to Thomas Meier, a German scientist at the Center for High Pressure Science & Technology Advanced Research, a unique function of sci-fi is to produce future talent in science, technology, engineering and mathematics. This is what society needs for sustainable growth.

When Meier was in high school, he read Jules Verne's classic *Journey to the Center of the Earth*, where a group of geologists want to find out what lies at the center of the earth. It inspired him, making him decide to study physics in university. Today, as a specialist in high pressure science, he simulates and studies the behavior of matter under high pressure in the laboratory, trying to know about the evolution of the earth better.

Sci-fi as a catalyst

Sci-fi has already been focusing on the issues people are experiencing today, such as artificial intelligence, energy crisis and climate change.

Ding Shiyong, science fiction editor and founder of the Warm Night Studio, said people could make better choices to deal with such problems based on the sci-fi strategies they have seen or read about. Ding, whose work involves sci-fi book production and communication, emphasized the need for environmental sustainability. She hoped sci-fi would provide people remedial knowledge in the face of environmental issues.

According to Palma, sci-fi has become a very important tool for science popularization because it inspires people to learn about the scientific logic

behind the scenes in the sci-fi world, and think how they could achieve such feats.

For example, some writers care about how cities will change in the future and where people will live at that time. So they imagine building a future city in space.

"It's not beyond reason to consider that future construction materials for such cities could be manufactured by robotic assemblers, harnessing CO₂ to craft frameworks, similar to how plants grow," explained Palma. "The realization of such concepts may take at least two centuries, largely due to limited science investment, typically two percent of the world's GDP."

"Nevertheless, sci-fi serves as a catalyst, driving the public to engage in the scientific foundations of these imaginative processes and materials. In turn, citizens may find inspiration to advocate for increased investment in scientific advancements for peace and prosperity. It's a feedback loop worth strengthening," added Palma.

Platforms for communication

Though sci-fi novels and films enjoy a conducive environment for their creation, their production volume is still not high, Ding pointed out.

A challenge in writing sci-fi is that it requires the author to have some technological background. American sci-fi maestro Isaac Asimov was a biochemist, while renowned British author Arthur C. Clarke was an engineer. So is award-winning Chinese author Liu Cixin.

To be able to produce influential and inspiring works, writers need to have a basic understanding of science, Meier said.

According to him, people outside the science community wanted to know what scientists are working on. So scientists could emerge from their labs and popularize science by giving talks or making short educational videos on social platforms.

Palma advocated promoting communication between scientists and sci-fi writers by linking the arts with the sciences and even building a network between citizens and scientists so that people could ask science-related questions to scientists and researchers. That would not only help sci-fi writers, but also improve public scientific literacy. Disruptive policies and programs should be created to foster this kind of communication.

However, Rome was not built in one day. It is also true for popularizing science and producing sci-fi because they are both challenging and it takes a long time to see their effects.

Ding had a message for the young people: "Sci-fi nurtures people's imagination and explorative spirit, while popular science translates this exploration into knowledge and understanding. Therefore, popular science or sci-fi is a path with endless possibilities."

Green Aviation Manufacturing Encouraged

By ZHONG Jianli

The Chinese authorities have unveiled an outline to promote the green low-carbon development of the aviation manufacturing industry, aiming to realize commercial and large-scale applications of unmanned, electric, and intelligent general aviation equipment by 2035.

The document, jointly issued by Ministry of Industry and Information Technology, Ministry of Science and

Technology, Ministry of Finance, and Civil Aviation Administration of China, says the energy-saving, emission- and noise-reducing performance of domestic civil aircraft should be further improved, and a number of relevant standards and technical service platforms should be formed by 2025.

Statistics show that the aviation industry accounts for 2-3 percent of global annual greenhouse gas emissions. The upper air emission of aircraft, and the

difficulty in decarbonization, give the industry great impact on global carbon emission and climate change.

The outline emphasizes the importance of adopting multiple technological approaches to develop low-carbon aircraft. Small aircraft will mainly focus on electric power, while regional and trunk line aircraft will revolve around new aerodynamic layouts, sustainable aviation fuels, and hybrid power systems.

Specifically, the document proposes accelerating the application of innovative products such as electric vertical takeoff and landing (eVTOL) aircraft, light and small fixed-wing electric aircraft, and new energy drones in urban air transportation, emergency rescue and logistics scenarios.

It also promotes the R&D of key hydrogen aviation technologies, expediting the development of core technologies for hydrogen storage devices, power systems and novel structural layouts suitable for hydrogen-powered aircraft. Explorations of new models for commercial operation of hydrogen-powered aircraft are also encouraged.

The integration of aviation manufacturing technology with new-generation information technologies, such as the industrial Internet, big data, 5G and general artificial intelligence, is welcomed. The development of recycling methods for metals, composite materials and power batteries will be promoted to form new business models for the scrapping and recycling of aviation equipment.

To facilitate the outlined objectives, three key projects will be implemented, including the Green Aviation Technology Innovation Project, the Green Aviation Innovation Application Demonstration Project, and the Green Aviation Standards and Airworthiness Compliance Verification Project.

In addition, international cooperation on green aviation development will be strengthened. Research institutions, universities and enterprises are expected to actively participate in the formulation of relevant international standards and rules, while an international technological innovation cooperation platform for green aviation is scheduled to be established.



China's first self-developed large passenger aircraft C919 adopts a number of technologies to reduce carbon emissions. (PHOTO: XINHUA)

Green Plan to Boost Computing Power

By ZHONG Jianli

China plans to increase the scale of its computing power to more than 300 EFLOPS (equal to one quintillion floating-point operations per second) by 2025, with the proportion of intelligent computing power reaching 35 percent.

The recently released action plan for high-quality development of computing infrastructure also said the speed and efficiency of the computing network will be improved. Transmission

speeds between critical computing facilities should not have a latency of more than five milliseconds.

Computing infrastructure is fundamental to the development of the digital economy. By the end of June this year, China's computing power has reached 197 EFLOPS, up from 180 EFLOPS in 2022, ranking second in the world. Its storage power has exceeded 1,080 exabytes, according to the Ministry of Industry and Information Technology.

The plan also called for optimizing

the distribution of national computing hubs and data center clusters, and promoting coordinated and complementary development of computing resources in the eastern and western areas.

In the western computing hubs and areas with a good foundation for AI development, smart computing centers will be constructed to upgrade intelligent computing power.

The policy encouraged Chinese enterprises to build computing facilities overseas, especially in countries along

the Belt and Road Initiative, to enhance their global service capabilities.

New businesses and application models should be developed in such fields as industry, finance, health, energy and education.

In addition, green computing infrastructure will be promoted, while the deployment of high-efficiency and low-carbon storage equipment will be accelerated. The plan encouraged the use of green energy, including wind and photovoltaic power in building computing hubs.

Science Fiction Inspiring Innovation
科幻与科创双向奔赴

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