

Humanoid Robot R&D to Drive Advanced Tech

Policy

By CUI Shuang & CHEN Chunyou

In early November, a guideline on promoting humanoid robot development was released by the Ministry of Industry and Information Technology, proposing to establish a preliminary innovation system for humanoid robots by 2025, while constructing an industrial ecology with international competitiveness before 2027.

"The humanoid robot is a future industry with vast space and great potential. It reflects the highest technological level of intelligent equipment in the world today," said Liang Liang, vice secretary-general of the Chinese Institute of Electronics, adding that humanoid robots represent a collection of the application of advanced technologies, such as AI, high-end manufacturing and new materials.

The guideline pledged to make breakthroughs in key technologies, such as humanoid robots' brain, cerebellum and limbs, while consolidating the basic components and promoting software innovation in order to cultivate key products. Meanwhile, related standards around system evaluation, industry applications and other key directions



A humanoid robot makes slow and deliberate strokes on the paper to produce a painting. (PHOTO: VCG)

should also be formulated.

Enterprises could be pooled together to carry out technological research and development, focusing on key areas such as self-developed chips, operating systems, underlying algorithms, simulation and testing, suggested Liang.

The guideline proposed to focus on creating highly reliable, safe and stable humanoid robot solutions for special fields, manufacturing scenarios, people's livelihood and key industries.

Goldman Sachs, an international investment bank, predicts that the market

for humanoid robots is expected to reach 154 billion RMB by 2035, which will provide new solutions to alleviate the labor shortage in elderly care and reduce the burden on families and society.

"As the closest robots to human form, humanoid robots can meet the needs of the production and service industries," said Hu Xiaoping, vice president of Flexiv, adding that they could provide richer human-robot interaction experiences in education, entertainment and other social spheres.

Liang suggested promoting the integration of new-generation information technology, such as AI, cloud computing, big data, Internet of Things, VR and AR with humanoid robots, and accelerating the commercialization of cutting-edge research achievements.

The R&D and application of humanoid robots will correspondingly promote innovation in the field of robotics and AI, boost the growth of related industrial chains, and accelerate the formation of an industrial ecosystem.

"China has made remarkable progress in AI, computer vision, and machine learning in recent years. The guideline will help enterprises to adjust their strategies and optimize the direction of innovative R&D, and promote the progress of humanoid robot technology and the market share," said Hu.

Case Study

Hami Melon Industry Pursues High Quality Development

By ZHONG Jianli

The Hami melon is a luscious and sweet muskmelon variety, named after the city of Hami in Xinjiang Uygur autonomous region in northwest China where it thrives. To establish a comprehensive industrial chain and tap the potential of this cash crop, the Hami melon industry alliance was set up in Beijing in October.

In recent years, Hami has implemented various measures for high-quality development of its melon industry, such as adopting sci-tech innovation to select the melon seeds and cultivate the fruit.

Through partnerships with research institutions, Hami has acquired efficient technical support to create new muskmelon germplasm and select the best new varieties. Some excellent new varieties with wide adaptability are already being grown nationwide. Collaboration with the National Crop Genebank has enhanced the capacity to preserve the germplasm.

Irrigation techniques have also been improved to ensure the highest possible yield. The water-saving submembrane drip irrigation system ensures adequate water for the fruit in the desert-like region, and smart irrigation applications enable farmers to

control the irrigation facilities from home or anywhere else by using their mobile phones. The efforts have improved the quality of the Hami melon, increased its sugar content and made it possible to store the fruit for a longer period.

However, despite the progress, the Hami melon industry still has to contend with challenges such as resource and environmental constraints and shortcomings in the cold chain logistics and preservation processes.

At the alliance's inaugural ceremony, Liu Gang, deputy director of the China Quality Certification Center, said "our aim is to create an efficient platform for high-quality development of the entire Hami melon industrial chain by pooling resources and establishing industry consensus."

Liu emphasized that the alliance will seek to stimulate innovation and build a collaborative system involving various stakeholders such as enterprises, research institutions, and standard certification institutions in the Hami melon industry.

In future, Hami will collaborate with other regions to advance Hami melon germplasm research and development, formulate and certify standards, establish fresh-fruit cold chains and enhance brand development.

Smart Photovoltaic Demo Campaign Launched

By LI Linxu

In its latest move to advance the deep integration of energy technology and modern information technology, China has kicked off a new round of smart photovoltaic demonstration campaign.

It aims to cultivate a batch of smart photovoltaic demonstration enterprises which can provide advanced and mature smart photovoltaic products, services, system platforms or integrated solutions.

A batch of smart photovoltaic projects will be constructed, according to a notice jointly released by five govern-

ment bodies, including the Ministry of Industry and Information Technology and the Ministry of Housing and Urban-Rural Development.

Priority will be given to such fields as solar energy and storage integration, building photovoltaics, photovoltaic greenization, and advanced photovoltaic products.

The applications of smart photovoltaics in the fields of communications and transportation, agriculture and rural areas, and new-type infrastructure are also high on the demonstration list.

Incentive measures for eligible enterprises will be rolled out later by relevant

departments, according to the notice.

The campaign is expected to further accelerate the industry application of smart photovoltaics and speed up the progress of smart photovoltaic technology.

It is a follow-up move to a five-year action plan focusing on smart photovoltaic industry innovation and development, which was jointly released by the five government bodies in 2021.

According to the plan, by 2025, the construction of the smart photovoltaic industrial ecosystem will be basically completed, and the industry's integration with the new-generation in-

formation technology will be gradually deepened.

Latest statistics from National Energy Administration (NEA) show that by the end of September, China's installed capacity of distributed photovoltaic power generated by households had reached about 105 million kilowatts, covering more than five million households in the country's rural areas.

In recent years, China's distributed photovoltaic power generated by households has developed rapidly, promoting the green transformation of energy as well as driving the growth of farmers' incomes, according to NEA.

Hangzhou to Create More Opportunities for International Talents

By LIN Yuchen

The 2023 Hangzhou International Human Resources Exchange and Cooperation Conference that opened in Hangzhou, east China's Zhejiang province, on November 12, publicized a series of local government policies to draw high-level talents and projects globally. Some resource exchange events were also held

simultaneously for that.

It was announced at the conference that over 100,000 intern positions will be provided in Hangzhou for young talents from worldwide each year. Hangzhou will then grant governmental funds to eligible people and projects.

The city will hold over 600 innovation and entrepreneurship events for young talents every year, and the select-

ed projects will get a maximum of 5 million RMB funding.

The conference also unveiled a list of the most attractive Chinese cities, based on the views of foreigners who have worked and lived in China. Hangzhou ranked fourth in the list, coming after Beijing, Shanghai and Guangzhou.

The conference invited experts

from 31 foreign research institutions such as the Fraunhofer Society of Germany and the National Institute for Research in Digital Science and Technology of France to participate in the discussions, as well as more than 130 overseas high-level talents.

An exhibition at the conference displayed the technologies developed by foreign researchers based in Hangzhou.



Hami melons are sold via livestreaming in the fields. (PHOTO: XINHUA)

Expanding Public Service NEVs in 15 Pilot Cities

By CHEN Chunyou

China plans to expand the coverage of new energy vehicles (NEVs) in public service roles in 15 cities, including Beijing, Shenzhen, Chongqing, Chengdu and Zhengzhou, according to a notice released on November 14 by the Ministry of Industry and Information Technology (MIIT), Ministry of Transport and six other departments.

The promotion of NEVs will focus on buses, sanitation vehicles, taxis, postal service vehicles, urban logistics and distribution vehicles, heavy trucks and airport shuttles, aiming to have 600,000 NEVs put into use for public service in these pilot cities within two years.

To support the expansion, more than 700,000 charging piles and 7,800 battery swapping stations will be built in these cities.

Efforts will be made to accelerate the application of smart orderly charging and high-power charging. In addition, advancements in intelligent networked vehicle technology are anticipated.

Meanwhile, breakthroughs are to be made in carbon trading and green

power trading for NEVs, and the localization rate of key components is expected to rise.

The selected 15 cities were classified into three categories. In addition to the first category mentioned earlier, it also includes Ningbo, Xiamen, Jinan, Shijiazhuang and Tangshan in the second category, and Lijiang, Haikou, Changchun, Yinchuan and Ordos in the third category. Each city has its strengths in developing the NEV industry and has set its goals.

For example, Beijing, ranking first on the industrial scale, aims to increase its NEVs by 36,300, and build 28,000 charging piles and 90 battery swapping stations. Xiamen, a national low-carbon pilot city, has decided to build 20,000 charging piles, and 31 battery swapping stations, and become the demonstration city for optical storage and charging.

This pilot initiative aims to develop replicable and expandable practices and patterns in the NEV sector, so that they can facilitate the full marketization of NEVs and the establishment of a green and low-carbon transportation system, according to MIIT.

Russian Experts Seek TCM Collaboration

By LONG Yuemei & BAI Wenlong

A Russian delegation headed by scientist Tupolev Valerii, vice-president of the Russian Academy of Engineering, visited Guangzhou Pharmaceutical Holdings Limited (GPLH) on November 18 to explore ways to conduct sci-tech exchanges.

"It is great to see that GPLH is integrating traditional Chinese medicine (TCM) production with advanced digital technology," Valerii said. The experts gained insight into intelligent production lines for TCM and the technique of producing Angong Niu Huang, a Chinese medicine used to treat acute cerebrovascular diseases.

Remarking on the significant changes in China over the past 15 years,

Valerii highlighted the broad collaboration potential between the Russian Academy of Engineering (RAE) and GPLH in the fields of TCM and pharmaceutical equipment production and technology. He also called for more talent exchanges, sci-tech cooperation and sci-tech achievement transformation.

To speed up the innovation process of TCM, GPLH has initiated the TCM Industry Technology Innovation Strategic Alliance. In June, Li Chuyuan, chairman of GPLH, was elected as a foreign academician of the Russian Academy of Engineering. Li said he will foster exchanges and cooperation between Chinese and Russian medical science and industry.

This is an edited version of the original article in Chinese.



The Russian experts experience the process of making the Angong Niu Huang in GPLH on November 18. (PHOTO: LONG Yuemei/S&T Daily)