The China AI and Autonomy Report

A biweekly newsletter on AI and autonomy developments in China

Welcome to the *China AI and Autonomy Report*, a biweekly newsletter published by CNA. In this issue, we cover, among other topics, reports that Alibaba has developed a new chip for AI applications; a report by a PRC think tank that estimates the PRC's AI workforce has a 1.7 million shortfall; and increased PRC government action on digital governance. We welcome your questions, comments, or subscription requests at chinaai@cna.org. Read in browser.

THIS WEEK'S CONTENTS

PRC RESPONSES TO US DEVELOPMENTS

An article in the PRC state-owned media outlet *Global Times* called US Federal Communications Commission (FCC) Commissioner Brendan Carr's call for DJI to be put on the FCC's Covered List a "political calculation," and called security concerns surrounding DJI drones "baseless."[1] The article noted that DJI, a Shenzhen-based drone company that accounts for more than 50 percent of the US drone market, has stated that "customers in America can continue to buy and use DJI products normally," and that PRC companies have continued to grow despite US sanctions. On October 19, Carr called for adding DJI to the FCC's Covered List, which would prohibit federal Universal Service Fund dollars from being used to purchase its equipment. According to Carr, "DJI drones and the surveillance technology on board these systems are collecting vast amounts of sensitive data—everything from high-resolution images of critical infrastructure to facial recognition technology and remote sensors that can measure an individual's body temperature and heart rate."[2]

MILITARY AND NATIONAL SECURITY

The PRC Ministry of National Defense [reported](#) **that the People's Liberation Army's (PLA's) National Defense University (NDU) School of Electronic Warfare has developed AI-enabled cyber security technology for automated network defense.** The NDU School of Electronic Warfare is described as the first PLA school to establish cyber security as a major. Over the past 10 years, the school has won five first prizes at military, provincial, and ministerial levels, and has contributed to personnel training, technological research and development, theoretical research, and core capacity building in the field of cyber security.[3]

POLICY AND GOVERNANCE

During a Politburo study session on China's digital economy, Xi Jinping emphasized accelerating the construction of an "intelligent and comprehensive digital information infrastructure" (for the full official read-out in Chinese from *Xinhua*, see [here](#),[4] for an abbreviated official read-out in English see [here](#)).[5] Xi said that digital technologies and the digital economy are crucial areas in a new round of international competition, emphasizing that China must "seize the commanding heights of future development" in these areas. Xi also called for improvement in the digital economic governance system with the strengthening of laws, rules, and policies. Assistant Professor Wang Peng of the [Gaoling School of Artificial Intelligence](#)[6] at Renmin University told the [*Global Times*](#)[7] that, in light of Xi's remarks at the study session, "supervision will be strengthened to protect personal information and data, prevent monopolies, and enable digital platforms." The discussion leader at the study session was Professor [Lyu Jian](#),[8] Nanjing University president and former deputy dean of Nanjing University's Computer Science Department.

China released a plan to protect intellectual property (IP) rights, including in the fields of big data and AI. The plan is the "14th Five-Year Plan on the Protection and Application of National Intellectual Property Rights," which was published by China's State Council on October 28 (see full text of the plan in Chinese [here](#)[9] and an abbreviated summary from Xinhua [here](#)[10]). Although the plan does not include many details related specifically to AI, it appears that the following government agencies will be responsible for IP rights pertaining to AI: the Ministry of Science and Technology, the Ministry of Industry and Information Technology, the Ministry of Finance, and the State Intellectual Property Office. This plan may be seen in the context of PRC companies increasingly seeking IP protection over the past several years. In the past, IP cases involving PRC and foreign companies have mostly concerned alleged infringements by PRC parties, according to a report by the [*Financial Times*](#). Over the last few years, however, as PRC international patent applications have ballooned, technology-oriented PRC companies are suing foreign companies and increasingly seeking IP protection.[11] For example, [last year Shanghai Zhizhen Intelligent Network Technology Co Ltd sued Apple](#), alleging that Apple's voice-recognition technology Siri infringes upon a patent the company was granted in 2009.[12] As China's burgeoning AI and autonomy industry continues to grow, IP rights issues are expected to become increasingly prominent in this area.

INDUSTRY

Phoenix News, a Hong Kong-based satellite television network, [reported](#) **that the IPO prospectus of SenseTime reveals that the company has been operating at a loss since 2018.** SenseTime, the world's most valuable AI company, reported revenue of 1.853 billion yuan, 3.027 billion yuan, and 3.446 billion yuan from 2018 to 2020, respectively, but also reported losses of 3.438 billion yuan, 4.968 billion yuan, and 12.158 billion yuan during the same time frame. The report also stated that PRC AI companies CloudWalk Technology, Megvii Technology, and Shanghai Yitu Network Technology were also facing losses. The losses were attributed to stiffening competition and a lack of commercialization pathways.[13]

Alibaba launched a new chip for servers designed for AI applications and storage (see story here from CNBC).[14] The processor, called Yitian 710, will go into new servers called Panjiu. Customers will not be able to purchase the chips and servers directly, but they will be able to purchase Alibaba's cloud computing services based on these latest technologies. Alibaba's new chip is seen as a way to make the company more competitive with the cloud services offered by Microsoft and Amazon, and it also follows the trend of other PRC companies, such as Huawei and Baidu, to design their own chips. Meanwhile, Alibaba is also reportedly looking to raise its technical capabilities through acquiring PRC chipmaker Tsinghua Unigroup, which has under its umbrella PRC memory chip leader Yangtze Memory Technologies Co. (see more from Nikkei Asia here).[15]

WORKFORCE

A report by the Lagou Recruitment Data Institute (拉勾招聘数据研究院**) on China's AI workforce found that demand for AI professionals in 2021 increased by 103 percent over 2020, leaving an estimated 1.7 million positions unfilled.** The report found that algorithm engineers, Java engineers, and product managers were in most demand. The average monthly salary in China's AI industry increased by 12.4 percent to 20,000 yuan ($3,130) in 2021. The average monthly salary for recently graduated algorithm engineers was 21,700 yuan ($3,395), an increase of 7,700 yuan from 2020. The report also found that 83 percent of the positions required at least a bachelor's degree or above, 23 percent required 1 to 3 years of experience, and 35 percent required 3 to 5 years of experience. Beijing, Shenzhen, Shanghai, Hangzhou, and Guangzhou are the five cities with the largest demand for AI professionals.[16]

Baidu co-founder and CEO Robin Li committed his company to training 5 million people on AI in the next 5 years. Speaking at the Emerging Engineering International Forum 2021 hosted by Peking University, Li's commitment is intended to better transition China's workforce to meet the demands of the AI marketplace.[17]

SELF-DRIVING CARS

US electric vehicle-maker Tesla announced the completion of a research and development (R&D) center and a separate data center in Shanghai. The *Global Times* reported that the R&D center will focus on the development of Tesla's software, hardware, process, and technology in China and also participate in global AI machine learning-related R&D.[18] Last month, in a virtual Q&A session at China's World Internet Conference, Tesla CEO Elon Musk stated that all data generated from business in China would be stored in the data center, and that personally identifiable information would be stored safely in China and not transferred overseas[19]—a move made by Tesla as PRC authorities have strengthened laws and regulations related to data security in recent months, including China's Data Security Law, which went into effect on September 1 (for full Chinese text of law from Xinhua, see here).[20] Western media have portrayed Musk as being on a "charm offensive" with China following troubles that the company experienced in China earlier this year.[21]

Huawei has denied rumors that it will set up an auto tech venture with Volkswagen focused on autonomous driving (see story in English here from Shanghai Media Group's Yicai Global).[22] Huawei Technologies has denied a report by 36Kr, a PRC-based publishing and data company focused on the "new economy," that it planned to set up a joint venture with Volkswagen to develop autonomous driving technologies.[23] The original story was picked up by prominent PRC media outlets, including the PRC's official English-language newspaper, *China Daily,*[24] and Hong Kong-based television network Phoenix News.[25] Although this story was denied, the two companies have shown openness to cooperation before. For example, in July 2021, Huawei and a Volkswagen supplier entered an agreement that

expects Huawei 4G mobile technology to be deployed in 30 million Volkswagen vehicles—a move that Volkswagen commented upon favorably, according to reporting by the _South China Morning Post_.[26]

Pony.ai (小马智行) was awarded the first batch of unmanned driving licenses in Beijing (see story in Chinese here from Cailian Press).[27] The award of the licenses, which are to be used in the Beijing Intelligent Connected Vehicle Policy Pilot Zone, also marks the first time Beijing is allowing autonomous driving tests without the use of safety officers in the driver's seat—a noteworthy development because, according to New York-based China-focused media outlet Sup China, autonomous driving companies typically must have backup drivers in their cars. Pony.ai is also the first to hold driverless licenses in Guangzhou and several cities in California, where it aims to launch a driverless robotaxi service in 2022. Pony.ai is worth $5.3 billion and is backed by Toyota, Sequoia China, and IDG Capital.[28] According to Reuters, Pony.ai recently put plans on hold to go public in New York after the company failed to gain assurance from Beijing that it would not become a target of a crackdown against PRC technology companies if it proceeded to do so.[29]

INTERNATIONAL COOPERATION

On October 18, four memoranda of understanding (MOUs) were signed at the Second Singapore-China (Shenzhen) Smart City Initiative (SCI) Joint Implementation Committee Meeting to accelerate digital economy collaboration, according to the Singaporean government's Infocomm Media Development Authority. MOUs were signed to deepen cooperation in the areas of the Internet of Things and blockchain solutions platforms, robotics development, digital twin-enabled solutions, and processing electronic invoices for international trade through a common framework. The Singapore-China (Shenzhen) SCI was established in October 2019 and has reported achievements in digital trade financing and establishing business-to-business platforms to strengthen connectivity between Singaporean and small and medium PRC enterprises.[30]

Xi Jinping called for the integration of new technologies, including AI, in the transport sector worldwide during a virtual speech given at the Second United Nations Global Sustainable Transport Conference on October 14, 2021 (see China's official television station CCTV's summary of the event in English here).[31] Xi said, "More should be done to develop smart transport and smart logistics and promote deep integration of new technologies like big data, the Internet, AI and blockchain with the transport sector, to ensure easier movement of people and smoother flow of goods." He also announced that China will set up a Global Innovation and Knowledge Center for Sustainable Transport "as a contribution to global transport development." The English translation of his speech from China's State Council website can be found here.[32]

NOTES

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For additional information, contact: CHINAAI@CNA.ORG

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