Science China Newsletter, April 2018

Trends in education, research, innovation and policy

Baise, China

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Swiss Spotlight

Scientist: Exploring Relationships Between Literary Production and Socio-Cultural Context

(Morgane Gonseth, April 30)

Morgane Gonseth is a Ph.D. candidate in Chinese studies at the University of Geneva. During the academic year 2017-2018, she is pursuing her research at the East China Normal University in Shanghai, thanks to a scholarship provided by the Swiss National Science Foundation. Her dissertation focuses on contemporary Chinese novels describing the coming of age and experiences of urban white collars hired in foreign-owned companies based in big Chinese metropolises. This research proposes to explore the relationships between literary production and its socio-cultural context. It thus aims at revealing the intrications of official discourses, popular representations and literary expression. Before starting her Ph.D. research, Morgane Gonseth completed a Bachelor and a Master in Chinese studies at the University of Geneva and spent a year at the Zhejiang Sci-Tech University in Hangzhou, China, between 2010 and 2011. Her interest in Chinese language and culture, rooted in a taste for travel and discovery, was comforted by this first contact with the country, and motivated her to pursue her exploration of China through its literature.

http://swissinnovation.org/newsChina/web/2018/00-180430-3f

Startup: Smart Flooring Solutions for People Flow Management

(Technis, April 30**)**

Technis commercializes smart flooring solutions for people flow management and monitoring in complex environments. Fitted with an innovative sensor technology and deep learning algorithms, the system recognizes the direction of movement, understands when a person falls on the floor and any other event it has been taught to recognize. By equipping sensitive areas, we are able to track people activity and deliver a precise, real-time monitoring of people entering and leaving different areas : Technis' solutions deliver a better understanding of your venue and provide actionable data for resource optimization and security. Introducing Smart Flooring as a Service (SFaaS). China is a key market for Technis : people flow management is crucial in these high population areas. Attending the Swiss venture leaders in China was decisive in the business contact establishment and helped Technis building promising partnerships.

http://swissinnovation.org/newsChina/web/2018/00-180430-d5

1. Policy

Strengthen Security, Management of Scientific Data

((Xinhua, April 02)

China will strengthen and standardize the management of scientific data to guarantee data security and enhance data sharing, according to measures issued by the General Office of the State Council. The measures are expected to provide better support to national scientific and technological innovation, economic and social development, as well as state security. The measures, which prioritize data security and focus on data sharing, require those who own the data to be responsible for data management. The measures also ordered strengthening supervision of the use and sharing of scientific data.

http://swissinnovation.org/newsChina/web/2018/01-180402-f7

Leading Large International Science Projects

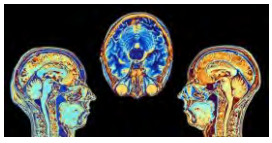
(Xinhua, April 04)

China will organize and launch one or two large international science projects, and foster three to five projects by 2020. Another six to 10 large projects will be cultivated by 2035 to increase the country's influence in the science and technology field, the Ministry of Science and Technology (MOST) said recently. As scientific research becomes more complicated with huge costs beyond the reach of just one country, international cooperation has become necessary, said Ye Dongbai, director of the international cooperation department of MOST. The State Council recently issued a set of guidelines to encourage the launch of more large international science projects with areas such as the physical sciences, research on the evolution of the universe and the origin of life were specifically listed as priorities.

http://swissinnovation.org/newsChina/web/2018/01-180404-f4

Pioneering Brain-Science Center

(nature.com, April 05)



Beijing announced plans to build a brain-science centre. This will be one of the first concrete developments in the national China brain-research project, which has been under discussion for five years but has yet to be formally announced. The centre will be a partnership between Beijing's premier biomedical institutions, among them the Chinese Academy of Sciences, the Academy of Military Medical Sciences, Peking University and Tsinghua University. Also other facilities are preparing their bids for support from the national brain project, such as the science park under construction in Shanghai. Finding enough researchers might be the greatest challenge for all of them. Jeffrey Erlich, a neuroscientist at NYU Shanghai, says as well

as hiring top neuroscientists, the brain-science initiatives will need to fund postdoctoral positions and graduate-school research posts offering internationally competitive salaries.
http://swissinnovation.org/newsChina/web/2018/01-180405-21

International Space Cooperation get Boosted

(China Daily, April 19)

China will continue to strengthen international cooperation in peaceful exploration and utilization of outer space, said Li Guoping, a spokesman of the China National Space Administration (CNSA), Thursday. So far, China has signed 121 cooperation agreements with 37 countries and four international organizations, Li said at a press conference about the Space Day of China, which will come on April 24, marking the day the country's first satellite was sent into space in 1970.
http://swissinnovation.org/newsChina/web/2018/01-180419-a2

Tighter Grip on Internet to Ensure Stability

(South China Morning Post, April 21)

China must strengthen its grip on the internet to ensure broader social and economic goals are met, state news agency Xinhua reported on Saturday citing comments from Chinese President Xi Jinping, underlining a hardening attitude towards online content. "Without web security there's no national security, there's no economic and social stability, and it's difficult to ensure the interests of the broader masses," Xinhua cited Xi as saying at a cybersecurity conference in Beijing. "We cannot let the internet become a platform for disseminating harmful information and stirring up trouble with rumours." Chinese regulators have been driving a sweeping crackdown on media content, which has been gaining force since last year, spreading a chill among content makers and distributors.
http://swissinnovation.org/newsChina/web/2018/01-180421-e4

Major Space and Defense Contractor Established Research Center

(China Daily, April 27)

China Aerospace Science and Industry Corp, a major space and defense contractor, established an intelligent industries research center in Beijing on Friday, pledging to tap a promising market in this field. Understanding the benefits of intelligent industries, CASIC founded the research center to help fulfill the goal of building a "smart society" envisioned by the 19th National Congress of the Communist Party of China last year. The center is also tasked with servicing a wide range of sectors such as transportation, agriculture, tourism, environmental protection and food and drug security.
http://swissinnovation.org/newsChina/web/2018/01-180427-12

2. Education

More Tech Graduates Return to China

(South China Morning Post, April 07, 2018)

More than 2.5 million Chinese students educated overseas have returned home, with the number doing so totalling 432,500 in 2016 alone, up 58 per cent from 2012, according to Frost and Sullivan. "The main drivers behind that trend include faster growing salaries, more opportunities and a sense of belonging in China, as well as the invisible promotion barrier for Asians in the US and Donald Trump's tighter immigration policy," said Neil Wang, Greater China president of Frost and Sullivan. Whereas in the past most Chinese tech graduates would choose to remain in the US to work for a start-up or established firm in Silicon Valley, China's state-backed efforts to push the country to global leadership in sectors such as artificial intelligence and smart manufacturing have made it more attractive than ever before for them to return.

http://swissinnovation.org/newsChina/web/2018/02-180407-ce

China's First Private Research University gets Green Light

(CGTN, April 13)

China's Ministry of Education has officially approved the establishment of the country's first private research university – a move that adds a new type of institutes to the Chinese higher education sector that has long been dominated by public establishments. The Westlake University aims to cultivate high-level talents and rival renowned international research-oriented institutes. The non-profit research university, whose two campuses are near the scenic West Lake in Hangzhou, capital of east China's Zhejiang Province, will prioritize research areas in natural science, engineering and medical science.

http://swissinnovation.org/newsChina/web/2018/02-180413-13

Master-apprentice System is Planned for Traditional Chinese Medicine Education

(China Daily, April 16)

China plans to combine the master-apprentice system with college education to train more practitioners in traditional Chinese medicine (TCM), according to a guideline issued by the State Administration of Traditional Chinese Medicine. The Law on Traditional Chinese Medicine went into effect on July 1, 2017, calling for TCM doctors and practioners to take on apprentices to pass on both theoretical and practical knowledge. China has over 4,200 TCM hospitals, with close to 900,000 beds. There were 482,000 TCM

practitioners in China in 2017, according to data from the administration. About 17.5 percent of all patients in China were treated with TCM.
http://swissinnovation.org/newsChina/web/2018/02-180416-f3

Baidu Education Focuses AI to Boost Platform

(China Daily, April 24)

The 2018 Partner Conference of Baidu Education was held on April 19 in Beijing. The conference aimed to shed light on China's education sector, assisted by artificial intelligence. At the conference, Analysis International, a Internet-related information, service and solution provider, released its latest industry report on China's Internet-based education platforms and gave in-depth analysis of the development of such platforms and their future trends. Representatives from Baidu Education demonstrated their product, and explained the company's plan to build an open and intelligent platform through its cutting-edge artificial intelligence technologies, and its determination to become an industry leader.
http://swissinnovation.org/newsChina/web/2018/02-180424-99

3. Life Sciences / Health Care

Researchers Transform Silk for Use in Skull Surgeries

(Xinhua, April 09)

Researchers led by Mao Ying, vice president of the Fudan University's affiliated Huashan Hospital, and Tao Hu, researcher of Shanghai Institute of Microsystem and Information Technology, have extracted silk proteins from the cocoons of the Bombyx mori silkworm and made them into fixing devices such as screws and linking stripes. Creating medical materials for skull fixation and repair is demanding. In the past, screws were usually made of metal materials, which were likely to cause foreign-body sensations resulting in discomfort. Metal materials risk infection and immunological rejection, meaning some patients have to go through second surgeries. "Compared with metal or chemical materials, silk devices have outstanding biocompatibility that induces no foreign-body reaction, and controlled degradation without generating hazardous residues," said Tao.
http://swissinnovation.org/newsChina/web/2018/03-180409-30

Deep Brain Stimulation as Neurological Treatments for Parkinson's Disease

(Xinhua, April 10)

Nearly 10,000 patients have received deep brain stimulation surgery since the first China-made brain pacemaker was implanted in a patient's brain in November 2009. "Deep brain stimulation surgery has

become an important method to treat the patients suffering from Parkinson's disease at the middle and late stages," said Li Luming from Tsinghua University. Statistics show that about one percent of the Chinese above the age of 50 suffer Parkinson's disease. The country is expecting more such patients as China becomes an aging society. Among all the therapeutic methods for the Parkinson's disease, deep brain stimulation is one of the most advanced neurological treatments, which combines neurology, neurosurgery and electrical engineering, allowing doctors to implant tiny electrodes in patient's brains to affect the abnormal cells.
http://swissinnovation.org/newsChina/web/2018/03-180410-c0

Promotion of Internet-Powered Healthcare

(China Daily, April 12)

China will greenlight medical institutions to conduct Internet medical services as part of a broader push to promote Internet Plus healthcare. Medical institutions will be allowed to provide online diagnostic services for some common and chronic diseases in patients' follow-up visits to their doctors, according to a statement released after a State Council executive meeting chaired by Premier Li Keqiang Thursday. According to the Healthy China 2030 Blueprint released in October 2016, efforts will be made to foster new industries, new forms and models of business in the health sector and to develop Internet-based health services.
http://swissinnovation.org/newsChina/web/2018/03-180412-cf

China and India Lead Rise in Global Antibiotic Consumption

(SciDevNet, April 18)

Antibiotic consumption worldwide soared by 65% from 2000 to 2015. High-income countries (HICs) — led by the US, France, and Italy — showed a 6% increase in total antibiotic use. But antibiotic consumption rates by population actually decreased by 4%. In contrast, total antibiotic consumption in LMICs — led by India, China, and Pakistan — increased by 114% over the same period. The consumption rate, meanwhile, rose by 77%, which is still half the consumption rate of HICs, suggesting there is still greater use of antibiotics per person in developed countries. "A rise in country-wide incomes suggests that individuals in these countries have increased ability to purchase antibiotics," explains Elli Klein, lead author. "However, increased economic growth is also associated with urbanisation, which can drive the spread of infectious diseases that accelerates the demand and need for antibiotics."
http://swissinnovation.org/newsChina/web/2018/03-180418-98

Nanozymes to Target Tumor Cells

(Xinhua, April 19)

During tumor growth and development, elevated levels of hydrogen peroxide (H2O2) are often exhibited in solid tumors, rendering tumor cells more resistant to treatment. But if the accumulated H2O2 can be combined with oxygen to be converted into a toxic reactive oxygen species, this may enable more effective means of tumor therapy, according to researcher Yan Xiyun. Previously natural enzymes were used, however, they were less sensitive and not as stable. So enzyme mimics or artificial enzymes were developed, but the efficiency of enzyme mimics was often insufficient. Therefore, Yan's research team from the Institute of Biophysics under CAS and researchers from Yangzhou University have developed a nanozyme which has shown excellent bio-compatibility. To optimize its performance, the team used ferritin, an intracellular protein found in most human tissue, to modify the surface of the nanozymes to enable them to target tumors.

http://swissinnovation.org/newsChina/web/2018/03-180419-3e

Universal Antibody Drug for HIV-1 Prevention

(Xinhua, April 26, 2018)

By engineering a tandem bi-specific broadly neutralizing antibody (bNAb), a research team led by scientists of University of Hong Kong found that this novel antibody drug is universally effective not only against all genetically divergent global HIV-1 strains tested, but also promoting the elimination of latently infected cells in a humanized mouse model. The single gene-encoded tandem bNAb titled "BiIA-SG" strategically ambushes invading HIV-1 particles to protect CD4 positive T cells by attaching to host protein CD4. BiIA-SG not only displays a potent activity against all three panels of 124 genetically divergent global HIV-1 strains tested, but also prevents diverse live viral challenges completely in humanized mice. Moreover, gene transfer of BiIA-SG achieves pro-longed drug availability in vivo, leading to a promising efficacy of eliminating HIV-1 infected cells in humanized mice.

http://swissinnovation.org/newsChina/web/2018/03-180426-61

4. Engineering / IT / Computer Science

Blockchain Platform Neo is Approaching Decentralization

(TechInAsia, April 04)

Neo's smart economy incorporates digitized physical assets, digital identity, and proof-of-ownership in their blockchain, with all of these assets having the ability to be traded and leveraged through smart contracts. The criticism of whether Neo is too centralized has often been raised about the platform's governance structure. In the crypto world, there are tradeoffs, e.g. bitcoin is more decentralized but faces criticisms for slow and expensive transactions and a lack of dispute mitigation mechanisms. Da Hongfei, founder of Neo, realizes such tradeoffs are necessary during expansion and does not plan for Neo to be centralized forever. "China is very supportive of blockchain technology but not of speculation, which is inherent in ICOs. The pure idealist would probably go straight ahead, but we saw barriers that we needed to deal with first," explains Hongfei.

http://swissinnovation.org/newsChina/web/2018/04-180404-06

First Chinese-built Polar Icebreaker will be Put Into Use in 2019

(China Daily, April 04)

China's first domestically-built polar research vessel and icebreaker "Xuelong 2" will be put in use next year, according to Science and Technology Daily. Construction of the vessel started in December 2016, the newspaper said. "Xuelong 2" will be able to turn quickly, have high safety standards, and strong icebreaking abilities. The vessel will be 122.5 meters long and 22.3 meters wide, with a displacement of 13,990 tonnes and a navigation capability of 20,000 nautical miles. It will also have two-direction ice breaking capabilities with both its bow and stern.

http://swissinnovation.org/newsChina/web/2018/04-180404-29

Online Tutoring Company Uses AI

(South China Morning Post, April 10)

A private tutoring group targeting primary and secondary schoolchildren is expanding into new markets, starting with a subsidiary school in Hong Kong. A move into the US is also on the cards for TAL Education, with discussions under way, according to its president, Bai Yunfeng. Bai said TAL is working with Stanford University to further advance the use of AI in its online tutoring programme. The two formed an alliance earlier this year to explore applications of AI in assessing students' comprehension during the learning process. TAL's online platform has been capturing data on students' level of understanding

by using facial and voice recognition technologies. Its team uses the data to give tuition support after class, or deliver more personalized educational content.
http://swissinnovation.org/newsChina/web/2018/04-180410-48

High-Tech Bank Without Clerks Opens in Shanghai

(China Daily, April 13)

An "unmanned", fully automated bank outlet that opened on Monday in Shanghai is receiving positive feedback from customers - especially younger ones. The facility, installed by China Construction Bank's Shanghai branch on Jiujiang Road in the downtown district, is self-service - replacing the counters and busy clerks at conventional banks - using robots, ATMs, a foreign exchange machine and an assortment of multimedia tools. China Construction Bank said the variety of self-service machines - assisted by cutting-edge technologies, such as robots, voice recognition, augmented reality, face recognition, voice navigation and holographic projection - can process more than 90 percent of the cash and noncash business of a conventional bank.
http://swissinnovation.org/newsChina/web/2018/04-180413-b3

Cause of Failed Long March 5 Rocket Found and Space Mission to Resume

(South China Morning Post, April 16)

The failure of the Long March 5 rocket, which plunged into the Pacific Ocean last summer, was caused by an oxygen supply problem, said an expert. According to a statement of the State Administration of Science, Technology and Industry for National Defence, six minutes after blasting off, the first stage of the heavy-lift rocket "suddenly lost a significant amount of thrust". The problem was caused by a turbofan in one of the main engines. "Under the environment of sophisticated pressure and heat, certain structures [on the turbo system] experienced abnormal changes," the statement said. This failure was seen as a setback for the country's space programme. However, the government said the problem had since been resolved and that a new generation of the Long March 5 rocket was in production and would be ready to launch by the end of the year.
http://swissinnovation.org/newsChina/web/2018/04-180416-97

Official Digital ID Integrated with Alipay

(TechNode, April 18)

A new system of official digital ID has been integrated with Alipay for making ID-validated purchases in test areas. The "Resident ID Online Verification Certificate" uses the "Internet+Trusted Identity Authentication Platform", also known as CTID, according to Xinhua. CTID is the system behind the trials of digital ID within WeChat late last year. The Alipay integration is now being trialed in the three cities Hangzhou, Quzhou and Fuzhou in eastern China. Registered users can make transactions that are fully validated from within Alipay itself, without having to separately supply the details of or show their standard ID card. These include coach and train tickets as well as checking into hotels. The Alipay ID is also valid in local authority service halls.

http://swissinnovation.org/newsChina/web/2018/04-180418-02

New Blockchain Venture Capital Fund

(TechNode, April 24)

Shenzhen, China's Silicon Valley of hardware, has announced the official launch of its first venture capital fund focusing on blockchain. The initial scale of the local backed fund is RMB 500 million, Bianews reports. The fund will be government-led signaling that the blockchain industry in China is entering what some local commentators have dubbed a "government-led mode." A large part of the fund will be financed by Shenzhen Angel Capital Guiding Fund which will contribute 40%. The fund will be managed by two investment funds under the State-owned Assets Supervision and Administration Commission of the State Council Donghai Capital and Hengxing Capital. The fund aims to invest in more than 100 blockchain seed projects.

http://swissinnovation.org/newsChina/web/2018/04-180424-1d

Ducted Fan Drone

(Xinhua, April 24)

China Aerospace Science and Industry Co., Ltd. (CASIC) has developed its first drone with a ducted fan system. The drone, which looks like a rice cooker, weights just 280 grams and is small enough to fit in the palm of the hand. The ducted fan system enables the drone to take off vertically and land in a narrow space. Developers also located the drone's rotor inside the duct, which can prevent the rotor being damaged during flight. The power efficiency of the drone is about 30 percent higher than common drones with four or six axes, as its power system is similar to a carrier rocket, said Zhao Tianlong, a researcher who worked on the drone. The ducted fan drone has potential applications in

search and rescue, reconnaissance in complex environments, indoor security, pipeline inspection, scientific research, and flight performance.
http://swissinnovation.org/newsChina/web/2018/04-180424-3c

Identifying Drivers Using Facial Recognition

(South China Morning Post, April 25)

Shenzhen is expanding a network of facial recognition surveillance cameras to catch more violations, after the success of an earlier trial to publicly name and shame jaywalkers. The so-called electronic police system captures photos of vehicles that violate the traffic rules in the metropolis of 12 million people, providing an image of not only the number plate but also the driver's face, which can then be identified from the police database using facial recognition technology. A total of 40 roads will be covered under the expanded surveillance, from the initial single intersection, to identify and fine traffic violators, including those driving without a valid license. The move is the latest in a push by Chinese cities and securities agencies to employ advanced artificial intelligence-based technologies in policing.
http://swissinnovation.org/newsChina/web/2018/04-180425-e2

Space Station Tiangong Matching ISS Standards

(Global Times, April 25)

China's space station Tiangong, or Heavenly Palace, which is scheduled to be launched in 2022, is expected to match or approach the standards of the International Space Station, and marks a breakthrough for the country's aerospace. Bigger than the 140-ton Russian Mir space station, the 66-ton Tiangong, or Heavenly Palace, consists of a core module and two laboratory cabins: enough for three astronauts in the long term and six during crew exchange. With a service life of more than 10 years, Tiangong will orbit at 383-403 kilometers and its modular structure makes it easy to maintain or expand according to research needs, Science and Technology Daily reported on Tuesday.
http://swissinnovation.org/newsChina/web/2018/04-180425-0f

Advanced Space Cargo Transport Aircraft

(Xinhua, April 26, 2018)

A new type of space cargo transport aircraft is under development and will complete its maiden flight in 2019, a space engineering company based in central China's Wuhan said recently. The aircraft is being developed using technology such as space inflatable deployment, flexible heat shielding and composite materials, enabling it to have a high bearing ratio at a low cost, said Lyu Dongming, board chairman of the Space Engineering Development Co. Ltd. under China Aerospace Science and Industry Corp. Ltd. New types of composite material cabins, and new types of environmental control and life

support technology will be applied to achieve products that offer support for missions such as return transport of space cargo, and delivery and recovery of goods. In the mid and long term, the aircraft will be actively involved in manned lunar exploration, Lyu said.
http://swissinnovation.org/newsChina/web/2018/04-180426-67

Mining Data Directly From Workers' Brains

(South China Morning Post, April 29, 2018)

Government-backed surveillance projects are deploying brain-reading technology to detect changes in emotional states in employees on the production line, the military and at the helm of high-speed trains. Hangzhou Zhongheng Electric is just one example of the large-scale application of brain surveillance devices to monitor people's emotions and other mental activities in the workplace. Concealed in regular safety helmets or uniform hats, these lightweight, wireless sensors constantly monitor the wearer's brainwaves and stream the data to computers that use artificial intelligence algorithms to detect emotional spikes such as depression, anxiety or rage. The technology is in widespread use around the world but China has applied it on an unprecedented scale in factories, public transport, state-owned companies and the military to increase the competitiveness of its manufacturing industry and to maintain social stability.
http://swissinnovation.org/newsChina/web/2018/04-180429-85

5. Energy / Environment

New Unmanned Submersible Dives to 2,605 Meters

(Xinhua, April 01)

China's unmanned submersible "Hailong 11000" recently dived 2,605 meters below the sea surface in the western Pacific Ocean, succeeding in passing the 2,000 meters grade deep water test. After the submersible entered the water from its mother ship it reached the depth of 2,000 meters some 105 minutes later. Operators conducted a system check and function test before allowing the vessel to dive deeper. It went down another 605 meters and successfully returned to the sea surface. The unmanned, remotely-controled submersible is designed to work at a maximum depth of 11,000 meters below the sea level. It will complete an 11,000-meter-deep sea test in three years, according to the China Ocean Mineral Resources R&D Association.
http://swissinnovation.org/newsChina/web/2018/05-180401-67

3D Conic Device to Increase Solar-Thermal Conversion

(Xinhua, April 15)

A device of 3D hollow-cone structure that can greatly increase the solar-thermal conversion efficiency, named artificial transpiration by researchers from Nanjing University, is inspired by the transpiration processes of trees. It has a special 1D water path within it, which can reduce the energy loss in conduction. The cone structure, based on graphene oxide film, can collect more sunlight throughout the day compared with a flat device, as about 10 percent to 50 percent of sunlight is diffusive. Thus it performs even better in the real world than in the laboratory. As a result, the device can enhance the solar-thermal conversion rate to 85 percent, much higher than the 40 percent of common devices.
http://swissinnovation.org/newsChina/web/2018/05-180415-67

Digitally-Driven Approach to Ecological Conservation

(Xinhua, April 20)

Tech giant Tencent has formed a strategic partnership with the World Wildlife Fund (WWF). They will commence the partnership with a series of digital-based ecological conservation projects in the Guangdong-Hong Kong-Macau Greater Bay Area. The initial phase of the collaboration will focus on igniting public awareness of ecological conservation, nurturing conservation talent and combating Internet-based illegal wildlife trade. Meanwhile, the two parties will work on modernizing the study of species diversity by upgrading the traditional data collection methods of pens, paper and telescopes, to a digital database system using Tencent's platform to analyze and manage data on species to formulate the most suitable protection plan.
http://swissinnovation.org/newsChina/web/2018/05-180420-ed

38 Nuclear Power Units in Operation

(China Daily, April 30, 2018)

The Chinese mainland now has 38 nuclear power units in operation, with a total installed capacity of 36.93 million kilowatts, according to China Nuclear Energy Association (CNEA). Most of the nuclear power units are located in Southeast China's coastal provinces, whose nuclear power generation makes up about 15 to 25 percent of total power generation, CNEA data showed. Thanks to improving manufacturing capabilities, China now can produce eight to 10 core parts for pressurized water reactors each year. However, nuclear power's share in the country's total energy generated is still low compared with the international average, and there is much room for improvement, according to Zhang Huazhu, a senior expert with CNEA. China aims to lift its installed capacity of nuclear power units in operation and under construction to about 88 million kilowatts by 2020.
http://swissinnovation.org/newsChina/web/2018/05-180430-52

6. Physics / Chemistry / Material Science / Nano- & Micro Technology

Chinese Researchers Develops New Construction Material

(Financial Express, April 03)

A new fire-retardant construction material which can resist flames as hot as 1,300 degrees Celsius without disintegrating has been developed by researchers from the University of Science and Technology of China. If used in walls, the material could provide extended protection against fire-induced collapse of reinforced concrete structures, winning more time for evacuation of the building, according to the researchers. It can also be used to insulate older buildings, the state-run Xinhua news agency reported today. The research team, led by Prof Yu Shuhong, came up with a composite aerogel with low thermal conductivity and excellent fire resistance. The composite, synthesised from phenol-formaldehyde-resin and silica, can resist a high-temperature flame without disintegration, researcher Yu Zhilong said.

http://swissinnovation.org/newsChina/web/2018/06-180403-f8

Researchers Develop Nanotech to Fight Cancer

(Global Times, April 13)

Conventional cancer chemotherapy involves drugs that can annihilate cancer cells but also healthy cells, causing lower immunity to infection, fatigue and hair loss. Researchers from the Shanghai Institute of Ceramics under the Chinese Academy of Sciences, announced they have devised a therapy using nanoparticles that can travel around the body and target only tumors, leaving healthy cells unaffected. The nanoparticles, inorganic and nontoxic, will trigger a reaction in the acid environment of a tumor, consuming a large amount of oxygen molecules in the tumor cells and block the vascular system in the tumor cells so as to prevent the supply of oxygen molecules and nutrients from outside. The tumor cells will eventually starve to death.

http://swissinnovation.org/newsChina/web/2018/06-180413-4c

Ductile Semiconductor for Flexible Electronics

(Xinhua, April 14, 2018)

Scientists from Shanghai Institute of Ceramics have found a kind of inorganic semiconductor, which has good ductility and flexibility at room temperature, which may be used in flexible electronics. Ductility is common in metals while it is rarely observed in inorganic semiconductors, especially at room temperature. Most semiconductor materials are brittle and cannot bend, pull or compress. The newly-discovered semiconductor a-Ag2S is ductile like metal and easily changes shape instead of breaking under outer deformation, according to the research. The material is expected to be applied in flexible electronic technologies such as wearable devices. For the application of flexible electronics,

the research team also produced a thin film made of a-Ag2S and found that it had great deformability and good electrical properties.
http://swissinnovation.org/newsChina/web/2018/06-180414-94

Wireless Charging for Rockets

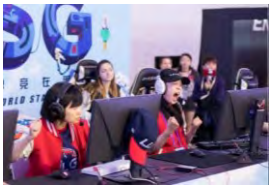
(Xinhua, April 17, 2018)

As wireless charging technology improves, small electronic devices such as mobile phones and electric toothbrushes can now be charged without any direct access to a power source. China's space scientists are now exploring ways of using the same wireless charging systems in rocket design. According to the China Academy of Launch Vehicle Technology (CALT), once the wireless technology is mature, the weight of a rocket will be reduced by at least one hundred kilograms, which means an extra hundred kilograms of payload.
http://swissinnovation.org/newsChina/web/2018/06-180417-bb

7. Economy, Social Sciences & Humanities

Women are Emerging in the E-Sports Scene

(South China Morning Post, April 03)



There is money in e-sports tournaments, but open-category competitions, which are open to both men and women, have much bigger payouts than women-only events. At the World Electronic Sports Games (WESG), the total prize money for the women's category in online collectible card game Hearthstone was US$51,000, compared with US$150,000 for the open category. The disparity arises from gaming being historically a male-dominated sphere, but things will improve as the sport matures, according to analyst Zhang Jiang. "Better female representation will come and will be necessary for the professionalization as well as the legitimacy of the industry", said Zhang. To promote female participation at the top levels of e-sports, Alisports is hosting competitions like WESG and creating women-only categories to ensure they get more exposure, according to chief executive Zhang Dazhong.
http://swissinnovation.org/newsChina/web/2018/07-180403-37

Massive Growth of the Digital Economy

(WEF, April 10)

According to a report from the McKinsey Global Institute China's digital economy has experienced massive growth over the last decade. 10 years ago China accounted for less than 1% of the global e-commerce market; today its share is 42%. In comparison, the US' share of the market is 24%. China now handles more e-commerce transactions per year than France, Germany, Japan, the UK and the US combined. One explanation for China's dominance is the explosion in use of mobile payments, which soared from 25% of mobile internet users in 2013 to 68% in 2016. What's more, one-third (34) of the world's 262 privately held startups valued at over $1 billion ('unicorns'), are Chinese, commanding 43% of the global value of these businesses. China's venture capital industry has also swelled to 19% of the global total 2014 and 2016.

http://swissinnovation.org/newsChina/web/2018/07-180410-40

Alibaba Offers End-to-end Product-Development

(Alizila, April 19)

Capitalizing on the growing popularity of mala, the Chinese word for "numbing and spicy," Mars Inc. last year teamed up with Alibaba Group to create a chili-infused Snickers bar that aims to satisfy Chinese consumers' hunger and craving for a tongue-tingling treat. The collaboration involved the integration of analytics from Mars' consumer research, the 500 million-plus users of Alibaba's online marketplaces and a customer survey aimed at finding a new flavor to bring to the market. This showcases Alibaba's latest service offering to brands: product development. The company launched the "Tmall Innovation Center" (TMIC) last April to help brands better compete in the world's second-largest consumer market by designing products specifically for those consumers. Alibaba offers end-to-end product-development, all the way from design, marketing and customer surveys to post-launch performance tracking, without stamping its own logo on the product.

http://swissinnovation.org/newsChina/web/2018/07-180419-07

Three Chiniese Cities Among Top 10 Wealthiest

(China Daily, April 27, 2018)

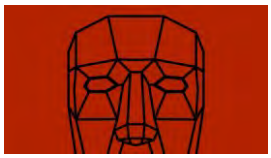
Three Chinese cities, namely Beijing, Shanghai and Hong Kong, have earned places in the top 10 wealthiest cities in the world, according to New World Wealth. Beijing, with a total private wealth of $2.2 trillion, grabbed the fifth spot on the list, following New York, London, Tokyo and the San Francisco Bay area. Shanghai,

with a total private wealth of $2 trillion, and Hong Kong, with a private wealth of $1.3 trillion, grabbed sixth and eighth place respectively.
http://swissinnovation.org/newsChina/web/2018/07-180427-48

8. Corporates / Startups / Technology Transfer

AI-Powered Facial Recognition Startup Breaks Funding Records

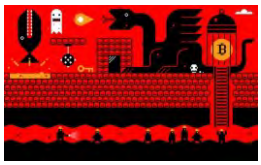
(MIT Technology Review, April 09)



SenseTime, an AI-powered facial recognition company, is breaking funding records. Bloomberg says that SenseTime has raised $600 million from Alibaba and other investors at a valuation of over $3 billion, making it the world's most valuable AI startup. SenseTime's technology helps power China's massive surveillance networks. The firm will use some of the cash to build at least five supercomputers to help track many thousands of live video feeds, boost staffing, and fund a push into autonomous driving and augmented reality. Bloomberg reports that the firm is already in talks to raise more cash and is targeting a valuation of over $4.5 billion. SenseTime has been hiring loads of AI PhDs, and since 2015 has published more papers at top AI conferences than American giants such as Facebook and Google.
http://swissinnovation.org/newsChina/web/2018/08-180409-72

Creative Responses to Crackdown on Crypto

(MIT Technology Review, April 17)



On September 4 last year the government issued a seeming death blow to the country's cryptocurrency scene. It did not outlaw virtual coins or mining them, but banned initial coin offerings (ICOs) and trading on domestic cryptocurrency exchanges, rendering many people's holdings effectively worthless. But the restrictive measures have triggered a wave of innovation targeting some of the problems faced by cryptocurrencies everywhere, not just in China. For example, Daniel Wang created an open-source software platform ('Loopring') anyone can use to build a decentralized exchange — a marketplace for cryptocurrency transactions that does not hold investors' assets. Instead, all assets and transactions are recorded on a public blockchain. That prevents insider trading, because anyone can view transactions. Smart contracts on the blockchain regulate the way orders are matched. Once matched, the parties transfer currency to each other electronically.
http://swissinnovation.org/newsChina/web/2018/08-180417-f8

Bike-Sharing Startup Ofo Welcomed in India

(Xinhua, April 19)

The bike-sharing company Ofo received more than 1.1 million orders in India in the first quarter in 2018, the company recently. The company announced the decision to enter the Indian market in November 2017. Its service is now available in seven Indian cities, including New Delhi, Indore, Bangalore, Ahmedabad, Pune, Coimbatore and Chennai. "India has a huge population, and with the worsening of urban problems like environmental pollution and traffic congestion, India needs more environmentally-friendly public transport solutions," said Dexter Sim, who is in charge of ofo's business in India. "There are 15 more Indian cities interested in the bike-sharing service," Sim said.
http://swissinnovation.org/newsChina/web/2018/08-180419-ab

Startup ecosystem report: China is Rising

(techcrunch.com, April 21, 2018)

To better understand why some startups thrive and many more die startup Genome looks at the ecosystems in which they operate. Every year they interview thousands of founders and investors around the world. To wit, China looks positioned to overtake U.S. dominance when it comes to numerous tech sectors. Consider: In 2014, just 14 percent of so-called unicorns were based in China. Between the start of last year through today, that percentage has shot up to 35 percent, while in the U.S., the number of homegrown unicorns has fallen from 61 percent to 41 percent of the overall global number. China is clearly "in it to win it," based on a look at patents, with four times as many AI-related applications and three times as many crypto- and blockchain-related patents registered in China last year.
http://swissinnovation.org/newsChina/web/2018/08-180421-c3

Connecting Cars to Home

(Alizila, April 22)

Daimler, Audi and Volvo have become the first automakers to add Alibaba's smart voice assistant Tmall Genie to the range of smart devices compatible with their connected car apps. This means car owners will be able to use Tmall Genie, the top-selling voice-controlled speaker in China, to monitor their fuel levels, mileage and the status of the engine and battery, as well as control car doors, windows and air conditioning, from home via voice command. Unveiled ahead of the Beijing Auto Show, the partnerships mark the first move into the auto space by Alibaba's A.I. Labs as it rolls out a series of Internet of Things (IoT) initiatives for industries spanning smart homes, education, entertainment,

airlines and hotels. The Labs is Alibaba's in-house research unit for developing artificial intelligence-powered consumer applications, such as Tmall Genie.
http://swissinnovation.org/newsChina/web/2018/08-180422-91

No More Mobikes in Saturated Cities and Sharing Data with Government

(Technode.com, April 23)

Mobike recognizes the problems caused by their bikes being parked in the wrong places or simply being abandoned by users. The bikes get in people's way, lead to traffic congestion and even spoil how cities look. Therefore firstly, they will add no new bikes to cities which are considered to already have enough bikes. Bikes will only be replaced and upgraded. Secondly, the data generated by Mobike's operations will be shared with the government on the proviso that user data is secure. The data share is intended to help the government ensure safer cycling by planning better cycle lanes and parking areas. Their third measure is to tighten their credit system. The system is intended to reward good users and penalize those who misuse the bikes by leaving the bikes in off-limits areas.
http://swissinnovation.org/newsChina/web/2018/08-180423-b3

Mobile Hardware Profit Margin at 5%

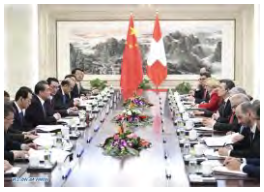
(South China Morning Post, April 25, 2018)

Xiaomi promises users that it will not earn more than 5% margin starting this year, as part of a move by founder Lei Jun to ensure that its products remain affordable to the masses. The Beijing-based company's board passed a resolution to limit the margin and to distribute any excess amount "by reasonable means" to its users, according to a statement. The company offers more than 300 different products from smartphones to powerbanks to smart weighing machines, often co-branded with the more than 100 partners that Xiaomi invested in. "From the beginning, we embarked on a relentless pursuit of innovation, quality, design, user experience and efficiency advances, to provide the best technology products and services at accessible prices," Lei said.
http://swissinnovation.org/newsChina/web/2018/08-180425-1b

9. Bilateral News

China and Switzerland Vow to Further Innovative Strategic Partnership

(Xinhua, April 03, 2018)



China and Switzerland vowed recently to further their innovative strategic partnership. The pledge was made between Chinese State Councilor and Foreign Minister Wang Yi, and Swiss Federal Councillor and Foreign Minister Ignazio Cassis when they held the two countries' first round of foreign ministerial strategic talks. In 2016, China and Switzerland established an innovative strategic partnership, the first of its kind between China and a foreign country. China is willing to boost its innovation cooperation with Switzerland in the new era to fulfill the important consensus reached by the two heads of state, Wang said. Yang Jiechi, member of the Political Bureau of the CPC Central Committee and Director of the Office of the Foreign Affairs Commission of the CPC Central Committee, also met with Cassis, calling for more progress in the two countries' innovative strategic partnership.
http://swissinnovation.org/newsChina/web/2018/09-180403-00

Swiss Startup Urban Farmers Expands in China

(startupticker.ch, April 20)

For the startup Urban Farmers it is a fact that it is harder for them to establish themselves in Switzerland than abroad. This is also because there is hardly any industrial agribusiness in Switzerland. Urban Farmers lacks the unique selling point compared to conventional agriculture, because in Switzerland, all farmers are actually urban farmers. Therefore Urban Farmers is expanding, in addition to the Netherlands, into two highly interesting markets. One focus is in Brazil and second one is in China, where soon more than 200 cities will have more than one million inhabitants. In addition, China wants to become the world market leader in terms of sustainability.
http://swissinnovation.org/newsChina/web/2018/09-180420-76

Swiss Tech Company Powers Asia's first B2B-Platform for IT Industry

(startupticker.ch, April 23)

Last autumn Balluun announced the opening of a subsidiary in Hong Kong. Now the Swiss company provided the technology for ITB2B.Asia, Asia's first end-to-end digital marketplace for technology vendors and business partners for the IT Industry, operated by Hong Kong-based Appsicon. The Balluun365 patented technologyis an integrated social e-commerce solution for launching industry-specific

marketplaces to connect buyers, suppliers and products; develop and expand businesses, or buy and sell products online 24 hours a day all year round. Leveraging social commerce technology, ITB2B.Asia matches the leading technology companies in the world with local business partners in the APAC region. First in its industry, Appsicon builds an ecosystem to facilitate business-to-business interaction. On one single platform: matching, building partnerships, engaging partners and e-commerce.
http://swissinnovation.org/newsChina/web/2018/09-180423-65

10. Calls for Grants/Awards

Call: The Second Smart UAV IntelliSensing Technical Competition

(Shanghai BeiDou Research Institute, April 30, 2018)

"The Second Smart UAV IntelliSensing Technical Competition" will be hosted in Shanghai in from April through September, 2018. Professional and amateur teams from both home and abroad are most welcome to register for this event. The theme of the competition is "Flying Intelligence". As one of the major components of the 5th China High Resolution Earth Observation Conference (CHREOC), the competition will be focusing on IntelliSense and aims to attract talents in the said field from around the globe. Targeting at UAV intelligent and collaborative sensing technologies, the competition is consisted of comprehensive technological application and online & offline competitive programs. More than 200 teams from around the world specializing in UAV and artificial intelligence will participate in the competition. Competition notifications will be published on http://www.chreos.org (CHREOC) and http://drone.sjtu.edu.cn/contest (Organizing committee). Competition teams need to finish the online registration by June 15, 2018. Follow the link below for further details.
http://swissinnovation.org/newsChina/web/2018/10-180430-8a

Upcoming Science and Technology Related Events

2018 Roche-RSC International Symposium on Scientific Frontiers to Enable Drug Discovery
June 1-2, 2018
https://is.gd/QnRDLy
Chemistry, Chemical Biology, Healthcare,
Shanghai

CES Asia
June 13-15, 2018
http://www.cesasia.cn/
Consumer Technology, Innovation
Shanghai

Swiss China Update 2018
June 21, 2018
https://is.gd/wwqkPM
Knowledge Exchange, Business Strategies,
Networking
Olten

Swiss-Chinese Life Sciences Forum 2018
September 13, 2018
http://www.swiss-chinese-life-sciences-forum.ch/
Health Sector, Life Sciences, Collaboration
Basel

Swiss Pavilion, China International Import Expo CIIE
November 5-10, 2018
http://www.shanghaiexpo.org.cn/zbh/en/
International Import Exhibition
Shanghai

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