



Science China Newsletter, June 2019

Trends in education, research, innovation and policy



Beijing

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Swiss Spotlight

Metric and Differential Geometry

(Marc Troyanov, June 10)

Marc Troyanov is professor at the EPFL Institute of Mathematics, he is also visiting professor at Shanghai JiaoTong University for the 2019 spring semester. He obtained his PhD from the University of Geneva in 1987 and a Habilitation from Paris XI-Orsay in 1992. He then spent 2 years in Bures-Sur-Yvette where he collaborated with the French Ecole Polytechnique, Université Paris XI and the IHES. He has been a visiting Fellow at Princeton University, visiting professor at the University of Utah, Salt-Lake-City, and professor at UQAM-Montréal. He joined EPFL in 1993 where he mostly teaches geometry and analysis courses at all academic levels. He is the author of a PPUR book "Cours de Géométrie". Marc Troyanov's research area covers differential geometry, metric geometry, geometric analysis, potential theory and analysis on metric spaces.



<http://swissinnovation.org/newsChina/web/2019/00-190610-44>

Start-Up: Multiple Skin Disease Screening in Real Time

(Deep Cube SA, June 20)

Deep Cube SA is a young startup founded in March 2018 in Biopole, Lausanne. They develop artificial intelligence (AI) technologies for medical screening in real time. The team of 5 enjoys the advantage of having 2 AI engineers as members, who both have won major AI international competitions. The startup offers both software AI models and embedded AI with an accuracy of 91 to 99%, a higher rate than the 80-85% average achieved by the best-in-class doctors in oncology. Their current model shows not only whether the skin is healthy or unhealthy in real time but also classifies it into 7 different skin diseases. In the future the solution will be expanded to include up to 20 different classes of major skin diseases. According to the WHO there are too many misdiagnoses, and Deep Cube aims at tackling this problem by providing a better and faster tool for doctors and consequently for patients. The team is looking for strategic partners from different countries, and thus gain access to a multitude of data on different types/colors of skin. In China, Deep Cube is looking to collaborate with a hospital that is open for pure innovation. This medical institution could in a next step benefit from the startup's technology and commercialization of its product. Also, the team is looking for Chinese investors to support Deep Cube for their Pre A-Series.



DEEP CUBE
Artificial Intelligence for Healthcare

<http://swissinnovation.org/newsChina/web/2019/00-190620-34>

1. Policy

Successful AI Facial Recognition to Identify Abducted Children

(China Daily, June 04)

Between 2006 and 2014, a Chinese gang abducted 13 children from Sichuan province and sold most of them in Guangdong province. As their appearances have changed so much, even their parents would not have been able to recognize them. Facial recognition technology and an information-sharing program have proved instrumental in helping police in China to identify and track missing children. The image recognition challenges were significant, because police had to take into account factors besides aging, such as changes in hair color and style. In 2017, police had a breakthrough in using artificial intelligence-based facial recognition technology to help find long-missing children. So far, police have rescued 10 of the 13 children abducted from Guangdong province, seven of which were traced with the help of AI. The technology used by police was developed by Tencent Youtu, the AI research lab of internet giant Tencent.



<http://swissinnovation.org/newsChina/web/2019/01-190604-21>

China Issues Strict Guidelines on Genetic Resource Study

(Global Times, June 11)

China on Monday released a management regulation on human genetic resources, banning their commercial trade. The measure also requires foreign organizations to cooperate with the Chinese side when conducting research on the country's human genetic resources. Experts hailed the move claiming it will promote rational utilization of human genetic resources and contribute to global biomedical development. Last month, Chinese Premier Li Keqiang signed a state council order promulgating the regulation which is expected to go into effect on July 1, the Xinhua News Agency reported. The regulation stipulates that China prohibits the sale or purchase of human genetic resources. However, resources provided for scientific research with reasonable expenses shall not be deemed as illegal.



<http://swissinnovation.org/newsChina/web/2019/01-190611-92>

Central Bank to Strengthen Shanghai

(Xinhuanet, June 13)

The People's Bank of China (PBOC), China's central bank, has recently announced that it will increase support to build Shanghai into an international financial center. By enabling the establishment of an integrated account system for the Chinese and foreign currencies in the new section of the free trade zone in Shanghai. Additionally, the PBOC will strengthen the interbank currency and bond market. A



further goal is the widening of foreign exchange options and an expansion of the number of market entities, according to the head of PBOC. Furthermore, a cooperation between the Shanghai Gold Exchange and the Chicago Mercantile Exchange will be supported by the central bank. All these efforts should help to build Shanghai into a global center for the allocation and risk management of yuan-denominated financial assets as global asset managers have been increasing their positions in such assets.

<http://swissinnovation.org/newsChina/web/2019/01-190613-12>

Industrial Internet Platform for SOEs Unveiled

(Global Times, June 15)

China launched the Industrial Internet Convergence Platform for Central State-owned Enterprises (SOEs) on Saturday, which will become a key infrastructure system to push for better inter-communication, resource sharing, and co-development of China's SOEs, according to the China Aerospace Science and Industry Corporation (CASIC,) the platform's leading developer. The building of the platform, which started last year, was carried out by 289 Central SOEs including CASIC, China National Petroleum Corporation , State Grid Corporation of China, under the guidance and coordination of State-owned Assets Supervision and Administration of the State Council.



<http://swissinnovation.org/newsChina/web/2019/01-190615-e8>

China Issues AI Principles

(Xinhuanet, June 18)

A professional committee under China's Ministry of Science and Technology has issued principles of next-generation artificial intelligence (AI) governance, pledging to develop responsible AI in China. The principles highlight the theme of developing responsible AI, addressing eight tenets including harmony and friendliness, fairness and justice, inclusiveness and sharing, respect for privacy, security and controllability, shared responsibility, open cooperation and agile governance. The principles emphasized international cooperation, protecting the future of AI and building a community with a shared future for humanity. It is the initiative and commitment that China's AI development makes to the world. Additionally, principles also focus on the long-term development of AI and proposed to carry out forecasting research, which can ensure the development of AI in the future would benefit humanity, society and ecology.

<http://swissinnovation.org/newsChina/web/2019/01-190618-6b>



2. Education

Government Responsibilities for Education Expenditure Defined

(China Daily, June 04)

The fiscal powers and expenditure responsibilities of China's central and local governments in the field of education has been defined in a reform plan issued by the General Office of the State Council. The document calls for expedited efforts to establish a systematic, well-conceived, clear and efficient mode for the division of powers and expenditure responsibilities in the field of education between the central government and local governments to push for equitable access to basic public services in education. The plan stresses that the central government's powers of making decisions on education expenditure should be clearly defined, while local governments should fulfill their responsibilities in terms of education expenditure.



<http://swissinnovation.org/newsChina/web/2019/02-190604-ce>

Rising Number of Vocational Colleges in China

(China Daily, June 07)

Both the number of vocational colleges and enrollments have been on the rise over the past decade, registering 1,418 and 11.34 million, respectively in 2018, according to a recent report. Colleges for vocational and technical training accounted for 53.2 percent of all higher education institutions, said the report released by the Eol website, an education information service provider, citing figures of the Ministry of Education. The number of students in vocational colleges increased 17.5 percent over that of 2009. Vocational colleges now recruit more demobilized military personnel, laid-off workers and migrant workers for the purpose of training them to enter a highly-skilled workforce for a restructuring economy, said the report.



<http://swissinnovation.org/newsChina/web/2019/02-190607-a3>

China Motivates Universities to Promote Rural Vitalization

(China Daily, June 13)

More than 30 universities have made plans to help rural areas revitalize, and 13 universities have established schools to study rural vitalization, said the Ministry of Education Wednesday. The ministry issued a five-year (2018-2022) action plan in January, which requires higher education institutions to have better ability to support rural areas through innovation and train a number of professionals who understand agriculture, love the countryside and are deeply connected to farmers. To fully implement the action plan, the



MOE will step up supportive policies, strengthen practical education and contribute efforts to win the battle against poverty.

<http://swissinnovation.org/newsChina/web/2019/02-190613-f0>

3. Life Sciences / Health Care

Ginger Research to Strengthen TCM

(Xinhuanet, June 02)

Ginger is known to have a warming effect on the body in Traditional Chinese Medicine (TCM). Now, Chinese researchers have found the protein which regulates the networks behind the effect. A total of five key metabolic processes seem to be linked to the warming effect of ginger. The two main active ingredients in ginger, namely 6-gingerol and 6-shaogaol, were researched in medical literature and in a protein database, which allowed to identified proteins that are targeted or regulated by these two compounds. In a second step, the team pieced together likely compound-protein and functional protein-protein interactions to build up a picture of the underlying regulating networks in the stomach and the small intestine that may make the body respond to ginger compounds. According to the researchers, the study provides insights that might add to the evidence base which supports the modernization of traditional Chinese medicine.

<http://swissinnovation.org/newsChina/web/2019/03-190602-51>

Genome Sequencing Ancient Wheat Seeds

(Xinhuanet, June 03)

In a joint research effort, four Chinese institutes have jointly managed to sequence the whole genome of 3,800-year-old wheat seeds, allowing to decode the food crop's spreading route into China. The scientists extracted DNA from seven ancient wheat seeds discovered from Xinjiang Uygur Autonomous Region, which is an essential geographic intersection between the East and the West. It was proposed that the common wheat dispersed from the Qinghai-Tibet Plateau in west China to the Yangtze River valley in central and eastern China. According to the team, this research provides detailed information on the origin, dispersal and genetic improvement for the cultivation of present-day wheat.

<http://swissinnovation.org/newsChina/web/2019/03-190603-0c>

Method to Detect Abnormalities in Mammal Eggs

(China Daily, June 03)

Screening for some rare diseases relies on gene sequencing. However, in some cases, the embryo's genes are normal but diseases develop later in the fetus during cell development or epigenesis. Chinese researchers have discovered a method to detect and correct abnormalities in nonhuman mammal eggs to prevent certain hereditary diseases in offspring. In lab tests on mice, the research team was able to identify certain abnormalities in eggs and found that they can be edited and corrected to a normal state through gene editing technology. They first focused on rare disorders, such as Angelman syndrome, whose main clinical manifestations include learning and behavioral difficulties. However, the research may also bring insights into new therapies for other conditions, such as autism. This technique may also be useful for in-vitro fertilization, to check for risks of epigenetic changes in the reproductive cells.



<http://swissinnovation.org/newsChina/web/2019/03-190603-b4>

Stem Cells Allow Embryonic Development Research

(China Daily, June 05)

A research team led by the University of Hong Kong derived expanded potential stem cells (EPSC) from pigs and humans, which gives way for a renewed study of embryonic development, regenerative medicine and biotechnology. The scientists successfully derived and characterized these new stem cells from pig pre-implantation embryos and additionally established EPSCs in humans using the same technique. This is the first time scientists have been able to derive stem cells from early pig embryos. Also, the researchers mentioned that domestic pigs have great potential for biomedical research because of their similarity to human genetics, anatomy and physiology. EPSCs possess developmental potency that is not generally seen in conventional embryonic stem cells. These new stem cells enable researchers to study early embryonic development, miscarriage and developmental disorders.

<http://swissinnovation.org/newsChina/web/2019/03-190605-83>

Fast Detection of Malignant Tumors

(China Daily, June 05)

Chinese researchers have developed a new and efficient fluorescent method to simultaneously detect a variety of malignant tumor markers. The new method is able to detect two kinds of common tumor markers, namely the alpha-fetoprotein (AFP) and carcinoembryonic antigen (CEA), conveniently, stably and sensitively. The levels of CEA and AFP in the serum are found to be related to the occurrence of many types of cancers. Simultaneous detection of multiplex targets plays an important role in the diagnosis of carcinoma. This is of great significance for the early detection and diagnosis of cancer.

Not only is this a simple method to operate, but it is also less costly, very convenient and has great potential in biomedical research and clinical diagnosis.

<http://swissinnovation.org/newsChina/web/2019/03-190605-09>

Precise Gene Editing Technique

(China Daily, June 11)

Gene editing, which offers a prospective medical treatment for rare diseases, often affects not only the target genes but also surrounding genes and other parts of the DNA and RNA, which may result in cell dysfunction and even cancer. Some established gene editing tools for DNA could potentially induce a considerable number of off-target mutations in RNA, which acts as a messenger for DNA. Chinese scientists have established a method to analyze and eliminate gene editing attempts that stray off target. They optimized the way enzymes interact with RNA, and engineered gene editing tools that caused zero off-target effects. According to the researchers, their technique has proven better than all previous ones in specificity and accuracy, providing insights into a safer and more precise genetic editing tool in the future. The team will proceed with lab tests on other animal models and hopefully promote the technique clinically in about two years.



<http://swissinnovation.org/newsChina/web/2019/03-190611-29>

Stroke Monitoring Device

(China Daily, June 12)

Stroke, one of the leading causes of death worldwide, is normally caused by poor blood flow to the brain, and the condition must be diagnosed within the first few hours of the stroke for an effective treatment. Chinese researchers have developed a device that uses near-infrared light to diagnose poor blood circulation in a non-invasive way by using near-infrared "diffuse optical spectroscopy" to analyze light scattered from tissues in order to calculate the amount of oxygen and blood within an area. Additionally, "diffuse correlation spectroscopy", another near-infrared light technique, was applied to analyze fluctuations in tissue-scattered light to measure the rate of blood flow. This new device provides a tool for doctors to treat strokes more quickly.

<http://swissinnovation.org/newsChina/web/2019/03-190612-15>

Artemisinin Resistance in Malaria Resolve

(Xinhuanet, June 17)

The Chinese Nobel Laureate Tu Youyou announced that her team has proposed solutions to the problem of artemisinin resistance and provided new evidence that it is still "the best weapon" against malaria. Malaria is the world's most spread insect-borne infectious disease with over 400,000 deaths

annually, and drug resistance has remained a big challenge to fighting it. Tu's team has been devoted to the study of the resistant mechanism since 2015 and discovered that partial artemisinin resistance is actually a delay in the clearance of malaria parasites from the bloodstream following treatment with combination therapy. The scientist explained that plasmodia can enter a state of dormancy during the three-day Artemisinin Combination Treatment, while they also develop a resistance to partner drugs. But if the treatment period is extended to five to seven days and the partner drugs are replaced, the artemisinin resistance can be solved and plasmodia can be killed.

<http://swissinnovation.org/newsChina/web/2019/03-190617-45>

Gene Mutation of Deer Has Implications for Medicine

(Chinese Academy of Sciences, June 21)

Chinese scientists recently explained why deer are less likely to develop cancer, how reindeer adapt to harsh environment and in what way they produce more Vitamin D. The answers could have far-reaching implications for medicine. Reports conducted by researchers from over 20 organizations mapped out the genomes of 44 ruminant species, a group of multi-stomached mammals including deer, cow and goat. One paper found that reindeer thriving in harsh Arctic conditions like extreme cold and prolonged periods of light and dark acquire a gene mutation that deprives them of the circadian clocks so that they can live without sleeping disorder. Additionally, the studies showed how supercharged Vitamin D-using genes in reindeer were evolved to help them absorb more calcium. This can be a potential molecular mechanism used to treat brittle-bone disease. The findings provide insights into genetic adaptations responsible for ruminant animals' biological success.

<http://swissinnovation.org/newsChina/web/2019/03-190621-17>

4. Engineering / IT / Computer Science

AI to Improve Wait Time in Children's Hospitals

(China Daily, June 01)

Shanghai's children hospitals have started to embed artificial intelligence (AI) into their system in order to decrease children's waiting time by around one third. Included into their WeChat account, the system helps making online reservations and pre-diagnoses. It is the first of its kind intended to make a family's experience at a children's hospital easier. On average, a hospital visit would take families 4-5 hours - even more during peak time - with the majority of time spent in the waiting area. Using the hospital's smart medical guidance module, parents can use voice or text messages, photos and videos to describe their child's symptoms, based on which the AI system helps making a diagnosis. The AI system will also recommend necessary medical tests based on the patient's condition, which will be



approved by doctors in real-time online. AI may also help pediatricians in the country's remote, disadvantage regions to break the bottleneck of a shortage of doctors and medical resources.

<http://swissinnovation.org/newsChina/web/2019/04-190601-39>

First Seaborne Rocket Launch

(China Daily, June 05)

China carried out the country's first seaborne space launch from a platform in its territorial waters in the Yellow Sea, which opens a new chapter in its space industry. The mission showcased China's mastery of the technologies and capabilities required for such operations and indicates the country has found an alternative to its ground-based launch centers. The country is striving to expand its launch service portfolio and promote its carrier rockets to more nations, especially those wishing to have their own affordable satellite networks. In the future, also bigger and more powerful rockets should be launched seaborne and the currently used launch platform will be adjusted accordingly. Compared with conventional land-based launches, a sea mission has a lower risk of causing trouble for densely populated areas along the rocket's trajectory. The method also allows launches to be made near the equator, which increases the rocket's carrying capacity, lowers launch costs and extends the life span of some satellites.



<http://swissinnovation.org/newsChina/web/2019/04-190605-07>

Lunar Rover Travels 212 Meters on Moon

(China Daily, June 10)

China's lunar rover Yutu-2 has driven 212.99 meters on the far side of the moon to conduct scientific exploration on the virgin territory. During the sixth lunar day of the probe on the moon, the scientific instruments on the lander and rover worked well, and about 1,654 MB of scientific detection data were sent to the core research team for analysis. The far side of the moon has unique features, and scientists expect Chang'e-4 could bring breakthrough findings. The scientific tasks of the Chang'e-4 mission include low-frequency radio astronomical observation, surveying the terrain and landforms, detecting the mineral composition and shallow lunar surface structure and measuring neutron radiation and neutral atoms. The obtained data has showed that the lunar soil in the landing area contains olivine and pyroxene, which came from the lunar mantle deep inside the moon. The mission could help unravel the mystery of the lunar mantle composition and the formation of moon and Earth.



<http://swissinnovation.org/newsChina/web/2019/04-190610-d9>

5G Farming Robot

(China Daily, June 18)

In a greenhouse, a robot moves in between two rows of leafy greens while data about the plants are gathered and sent back to a control room. The robot was put to use in East China's Fujian province, and unlike many other agricultural robots, this one is 5G-enabled. That means the real-time picture and video transmission has super low latency, which allows the data gathered from the robot's various sensors to be analyzed by AI more efficiently. With AI algorithms the robot can use the data to determine the plants' health condition, pest control conditions, or even pick fruit with a bionic hand in the future. China has been the world's largest market for industrial robot applications since 2013 and strongly believes that robot applications can alleviate the pressure from rising labor costs and build more high-quality development.



<http://swissinnovation.org/newsChina/web/2019/04-190618-54>

5. Energy / Environment

New Spider Species

(Xinhuanet, June 14)

A new species of spider has been discovered in the Southwestern Chinese province of Yunnan by Chinese scientist. When first finding it, the scientist mistook it for a previously know species named "Platythomisus octomaculatus". However, a succeeding more careful examination of the arthropod aided by molecular evidence showed that it was indeed a new species. The female ones are roughly the size of two finger nails whereas the mail ones have red and pink patterns on the back. The scientist named the new spider species "Platythomisus xiandao".

<http://swissinnovation.org/newsChina/web/2019/05-190614-46>

China Strides Towards Lower Energy Consumption

(China Daily, June 18)

China just launched a nationwide energy-saving week and released an action plan. The action plan has set the tone for the development of the refrigeration industry, aiming to expand the market share of green high-efficiency refrigeration products to save the annual power consumption by 100 billion kilowatt-hours by 2022. Meanwhile, the long-term goal is to save 400 billion kWh annually by 2030. In past years, the country has made quite some progress when it comes to energy-savings. During the 13th Five-Year Plan between 2016 to 2020, China's energy consumption per unit of GDP has declined 11.35 percent



and the total energy consumption in 2018 was 4.64 billion tonnes of standard coal. The week's theme is "prioritizing energy-saving in green development". Local governments will summarize the models and experience of regional energy-saving projects and guide the public to actively practice green lifestyles.

<http://swissinnovation.org/newsChina/web/2019/05-190618-4d>

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

Polar Bear Inspired Heat Insulation Material

(Xinhuanet, June 07)

Under the microscope, a polar bear hair has a long, cylindrical cavity through its center that renders the bear remarkable heat-holding capacity. Getting inspiration from such polar bear hair, Chinese scientists got inspiration to develop a light-weight, stretchy heat insulation material, which can be applied in the architecture and aerospace sectors in the future. The spaghetti-like aerogel block the researchers created has millions of hollowed-out carbon tubes, each equivalent to a single strand of hair. The heat conductivity of the material is even lower than that of dry air, since the air inside the tiny cavity, only 35 nanometers in its inner diameter, can hardly transfer heat. Additionally, with a minimum density of the material of 8 kilograms per cubic meter, it is lighter than the majority of current heat insulators. The research team is now working to overcome the obstacle of building those insulators on the meter scale.

<http://swissinnovation.org/newsChina/web/2019/06-190607-53>

Graphene for Ultra-Sensitive Tactile Technology

(China Daily, June 11)

High-performance flexible pressure sensors are highly desirable in health monitoring, tactile robotics, and artificial intelligence. They allow robots to feel their external mechanical environment, whereas the development of graphene provides a new solution for the next generation of ultra-sensitive tactile technology. Researchers have recently developed a new type of graphene electrode for ultra-sensitive and controllable flexible capacitive pressure sensors. Multi-scale shapes of graphene ranging from a few nanometers to hundreds of nanometers, even to tens of micrometers, have been investigated and the researchers also found that the micro-structured graphene electrode can enhance a large deformation of dielectric material and thus effectively improve its sensitivity. These newly developed pressure sensors are practical in insect crawling detection, wearable health monitoring, force feedback for tactile robot sensing with a sensor array and human-machine interface systems.

<http://swissinnovation.org/newsChina/web/2019/06-190611-04>

Super-Fast Charging Lithium Ion Battery

(Xinhuanet, June 14)

A new, high-energy lithium-ion battery technology, which could enable a running distance of 300 km per 10 minutes of charging was introduced recently. The key to this fast-charging technology is the R&D of fast lithium-ion conducting materials. The materials mainly consist of low-impedance ionic compounds that could not only raise power cell efficiency but bring down safety risks caused by lithium precipitation during charging and discharging. A third-party evaluation report issued by the independent testing company TUV SUD showed that the cycle life of the power cells using the new technology has hit 5,000 times in a 150-ampere charge-discharge performance test and is expected to exceed 6,000 times since the cycle testing continues. The breakthrough in fast charging technology will help popularize pure electric vehicles by providing a shorter charging time, a smaller battery load in limited spaces and more safety.

<http://swissinnovation.org/newsChina/web/2019/06-190614-16>

Converting Light Energy and Biomass to Diesel Fuel

(Xinhuanet, June 15)

Biomass, including agricultural straw and forest waste, is the largest source of sustainable carbon resources in nature. It is able to replace petrochemical resources to provide abundant derivative products. However, biomass derived from a hydrogen production process may become waste and pollute the environment. Recently, scientists of the Dalian Institute of Chemical Physics of the Chinese Academy of Sciences have developed technologies which can merge the process of hydrogen production and biomass conversion in order to create diesel fuels with light energy. This is a green way to make diesel fuels and hydrogen, which could lead the way into a greener future.

<http://swissinnovation.org/newsChina/web/2019/06-190615-06>

7. Economy, Social Sciences & Humanities

Highest Digital Payment Penetration in China

(Xinhuanet, June 13)

More than half a billion Chinese people will choose to pay with their phones in brick-and-mortar shops, cafes and restaurants this year, which equals a penetration rate of above 35%. This represents the highest digital payment use in the world. India comes in second with a slightly lower rate of 29.5%. Interestingly, the overall annual transaction value per customer in China is lower than that of the United States, the United Kingdom and France.

<http://swissinnovation.org/newsChina/web/2019/07-190613-09>

Huawei's Patents to Put Pressure on Foreign Companies

(South China Morning Post, June 15)

The Chinese telecom giant Huawei has 56,492 patents on telecommunications, networking and other hi-tech inventions worldwide and could use them during the difficult trade relations with the US. This vast portfolio of patents might become a big advantage for the Chinese company as pressure from the Trump administration grows. Huawei is stepping up pursuit of royalties and licensing fees as its access to American markets and suppliers is being restricted. Huawei has not only become a flashpoint in the middle of a 5G arms race, it is also one of several companies targeted in US President Donald Trump's ongoing trade dispute with China. Given Huawei's position and the pressure they are feeling, at this point, it is a likely step that they go after overseas companies in the patent arena.



<http://swissinnovation.org/newsChina/web/2019/07-190615-53>

Digital Economy Will Grow Through 5G

(Xinhuanet, June 13)

The digital economy is expected to play a key role in the future, which might make up 60 percent of the global economy, with the share in China even higher at 65 percent. China is expected to see faster digital economy growth than other countries as the grant of 5G commercial-use licenses will stimulate industrial upgrading. The commercialization of 5G technologies will make data gathering and exchange easier and faster, propelling the growth of fields such as autonomous driving and safe cities. Companies should leverage digital platforms and ecosystems to expand innovation capabilities. According to an estimate of the International Data Corporation, Chinese companies will invest over one trillion US\$ in IT-spending related to digital transformation from 2019 to 2022 and the Chinese IT security market could reach 13.8 billion US\$ by 2022.

<http://swissinnovation.org/newsChina/web/2019/00-190613-2c>

World Leader: China Accounts for Over Half of Global EV-Sales

(Xinhuanet, June 18)

Worldwide, China is leading the electric car market as it sold 1.2 million electric vehicles last year, accounting for 56 percent of total global sales. The country's policy decisions, particularly ones to improve urban air quality, are supporting alternative fuels in the trucks and buses sector, which include taxis and delivery vehicles. There are just under 500,000 electric buses in China, as compared with only several hundreds of buses in the United States. Also, with regards to the traditional fuel demand, a slowdown in the rate of growth in oil demand was notable. This reflects the rise of the consumer economy. While this phenomenon is partly due to short-term economic issues, it is largely due to a

long-term shift in the structure of energy economy. The country is moving away from investments in heavy industry and construction sector, towards a consumer-focused economy.

<http://swissinnovation.org/newsChina/web/2019/00-190618-31>

8. Corporates / Startups / Technology Transfer

Road Tests for Self-Driving Car Company

(Xinhuanet, June 15)

The Chinese AI-powered mobility company WeRide is ready for a road test of its intelligent connected vehicle (ICV) in southern China's Guangdong Province. The firm has over 20 provisional license plates issued by the public security bureau of Guangzhou, the capital of Guangdong. WeRide started 5G-related cooperation with China Unicom, one of the country's three leading telecommunications operators, last year. They jointly built a lab on the R&D of cutting-edge applications of 5G-based autonomous driving. Founded in 2017, the autonomous driving company received Series A funding by Alliance Ventures, the strategic venture capital arm of Renault-Nissan-Mitsubishi. China allowed local governments to arrange road tests for ICVs, which cover different degrees of autonomous driving and an increasing number of cities, including Beijing, Shanghai and Chongqing, have issued car plates for road tests of ICVs.

<http://swissinnovation.org/newsChina/web/2019/08-190615-d1>

Ride-Hailing App Didi Enters Chile

(Xinhuanet, June 16)

Chinese ride-hailing platform Didi Chuxing has dived into Chile's transportation market, launching its services in the Pacific Coast resort of Vina del Mar. Didi Chuxing rapidly chalked up 60,000 passengers and 16,000 drivers since its operation started on June 3 in the seaside town west of the Chilean capital of Santiago. The company sees great growth potential in Chile's urban areas due to the large population. Additionally, the country represents Latin America's inclusive position towards innovation and technology and is aiming at becoming an innovation leader in the area, according to representatives of Didi. Meanwhile, China - as the world's largest ride-hailing app market - has a lot of experience it hopes to export. The expansion strategy of Didi Chuxing is especially targeting Latin America as a target market.

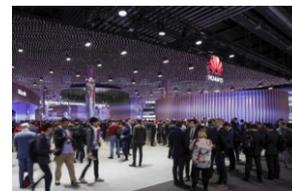
<http://swissinnovation.org/newsChina/web/2019/08-190616-a9>

9. Bilateral News

Huawei Will Create 100,000 Research Jobs in Zurich

(Greater Zurich Area, June 24)

Huawei, the Chinese telecommunications giant, is planning to create 1,000 research jobs in Switzerland. With respect to this plan, the company intends to invest several hundred million Swiss francs into research facilities. The intention has been there for a while - last year Huawei announced that it would open two research centers in Zurich - however, this is the first time, they gave more details about the plan. The specific research areas are not exactly defined yet but most certainly the firm aims at taking advantage of Switzerland's pioneering knowledge in certain areas such as physics, nanotechnology, material sciences, natural sciences and physics. Switzerland's huge innovative power, as proven by the amount of patent applications, and the strong higher educational institutions are further reasons for the Chinese company's decision to come to the alpine nation.



<http://swissinnovation.org/newsChina/web/2019/09-190624-28>

Upcoming Science and Technology Related Events

EPFL Turns 50! Celebrations

July 12, 2019

<https://is.gd/asr1UG>

Swiss University, Birthday

Shanghai

Science Diplomacy: Sustainable Investment along the Belt & Road

July 16, 2019

<https://is.gd/7MBhXd>

BRI, ESG Investment

Shanghai

Café des Sciences: From Architectural Anthropology to Digital Fabrication

July 18, 2019

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