Alibaba Cloud

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Tech For
〔Change〕

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Alibaba Cloud

Special Issue

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Extending Technology's Benefits to Everyone

Selina Yuan

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Surveying human history, it becomes evident that the history of humanity is a history of revolutionary change. The agricultural revolution changed the relationship between people and the land. The industrial revolution empowered people to use more complicated tools to manage their world, and made many goods and services cheaper and more readily available than ever before.

Now, we are experiencing the Digital Revolution. Many things that seemed impossible just a few years ago are now commonplace. Our productivity has been dramatically improved by AI, Big Data, 5G, and IoT, and new applications for these technologies are being found seemingly every day.

These digital technologies have woven themselves into our daily work and lives: we are in a new digital world, which we hope will benefit everyone. Digital technology keeps moving forward, and I am thrilled to see more and more digital technologies playing increasingly important roles in promoting public good and welfare.

How can we utilize new technology to change - and hopefully improve - people's lives in areas like healthcare and education? We are making a strong, concerted effort to realize "technological wellbeing" by supporting people who are making a difference.

Human beings have always had the drive and creativity necessary to bring about technological innovation. We hope we can be a force for good as we move forward into the new digital age.

The more innovative technologies continue to emerge, the more effort we will put into bringing them to everyone, for the benefit of society and the world.

Technology Makes the World A Better Place

Today's emerging technologies allow for more visionary and innovative businesses that change lives and make a better world. Alibaba Cloud, the digital technology and intelligence backbone of Alibaba Group and a provider of transformative digital tech for businesses, embraces this notion and it is calling for inspiring ideas and joint efforts to tackle critical global social and humanitarian challenges in areas like education, economic development, and the environment.

In this issue, we will introduce several stories illustrating how computer technology can help solve tricky societal problems including poaching, computer literacy for poverty-stricken women and children, and training for rural doctors. Let's see how technology is working to shape the world in which we live.

From Trafficking Victim to Technology Pioneer

Mariéme Jamme is not just one of the most influential women in the world today, she's also one of the most inspiring.

Jamme, now a British citizen, was once a human trafficking victim smuggled from her home in Sénégal to Paris when she was young. She never had a formal education but taught herself to read and write as a teenager. Later she took on computer programming by learning seven different computer languages at her kitchen table in Surrey.

iamtheCODE, a global education initiative aiming to teach one million girls and women to code by 2030, is partnering with Alibaba Cloud Academy, which offers free infrastructure, products and online courses on cloud computing and AI for young female entrepreneurs.

Diagnosis Simulator: a Cure for Rural Healthcare Woes

Established by Wenting He and Cheng Zeng, the CureFun aims to build the capability of medical practitioners across different areas, bridging China's healthcare education gap in rural or remote areas, and eventually in other developing countries around the world. The app makes valuable educational and training tools accessible to users, no matter where they are located.

By partnering with and leveraging Alibaba Cloud's cloud infrastructure, content delivery network (CDN), machine learning, and big data capabilities, CureFun is able to create virtual patients for doctors and medical students, improving their clinical reasoning and critical-thinking skills.

CureFun is now a valuable tool for students and doctors in hundreds of hospitals and medical schools across 20 provinces in China for teaching, studying, practice, testing, and evaluation.

Beating Hunger

According to the United Nations World Food Programme's (WFP) 2018 Hunger Map, 821 million people around the globe do not get enough food. Besides climate change, inefficiency in food distribution is the biggest cause of world hunger. This challenge can be overcome with innovative technology and data intelligence. In 2017, Alibaba established the Alibaba Poverty Relief Program, investing RMB 10 billion over five years to alleviate poverty by focusing on education, rural commerce, empowering women and girls, healthcare, and environmental sustainability. That same year, Alibaba and the WFP connected small farmers in the Eastern Chinese province of Anhui directly with the market, helping them get better prices for their produce and alleviating their poverty.

Making the World A Better Place

As humans in 2020, we are experiencing a life-changing digital revolution that will profoundly affect how we live our lives in the coming centuries. And yet, we still have not solved some of the most fundamentally important problems facing mankind, such as looming environmental and humanitarian crises and major social challenges such as poverty and illiteracy.

There are those who dream of harnessing revolutionary technology to solve these age-old problems and make the world fairer and better place for all. It's easy to dismiss their vision as impractical, but those who understand modern technology can make even their wildest dreams come true. They are the ones who are proudly pushing forward with Tech For Change.

Tech for Career

Coding Better Future for African Women

iamtheCODE is the first African-led global movement to mobilise governments, businesses and the philanthropic foundation on STEAMED education (Science, Technology, Engineering, Arts, Mathematics, Entrepreneurship, and Design) through learning how to code, fostering creative learning and cracking tough problems.

According to #iamtheCODE movement over 65 Million girls are denied access to basic education. If we don't break down barriers and help move girls in the technology industry forward through inclusion, layers of citizenship and a digital divide in our society are created. For iamtheCODE, priorities are to use technology to change the lives of young women entrepreneur through tech, to create employability and to equip them with the digital skills of the future.

Alibaba Cloud supports this young women programmers in marginalised communities through free online training and free access to cloud computing resources, with the aim to enable one million woman and girl coders by the year 2030.

Under the partnership with iamtheCODE, Alibaba Cloud will provide tailored courses on a range of topics including cloud computing, data analysis, machine learning and security. iamtheCODE will also add Alibaba Cloud to their blended curriculum, as certificates will be awarded to young female students who pass the course to help them along with their career path towards engineering and other practical subjects. To date over 13,000 girls have access to the iamtheCODE Curriculum. In addition, each enrolled student will be offered free access to cloud computing resources during their study.

Mariéme Jamme, founder of iamtheCODE , said the tie-up with Alibaba Cloud would allow the organization to reach more disadvantaged women, making its curriculum"even more accessible."

"We are truly honored and excited for the girls, as they will have access to the new technological advancements of Alibaba Cloud. Working with Alibaba Cloud will make a great difference in the lives of millions of young women globally,"she also said.

Reference:

https://www.alizila.com/alibaba-cloud-makes-call-use-tech-for-change/

https://www.iamthecode.org/alibaba-cloud-launches-tech-for-change-initiative-for-social-good/

Mariéme Jamme, founder of iamtheCODE, spoke at Alibaba Cloud Event at Mobile World Congress 2019 in Barcelona

Tech for Cure

Health Consultation on Cloud

DoctorSHARE, a non-profit organization focusing on healthcare services and humanitarian aid, provides rural residents in Indonesia with access to healthcare information especially related to the COVID-19 pandemic.

Through Medico.id, a clinic information system provider who is also the partner of Alibaba Cloud in Indonesia, Alibaba Cloud learned it and offered free cloud computing to support this valuable course.

Alibaba Cloud will provide cloud computing resources to support the healthcare information platform operated by Medico.id. Patients can access to the platform via an application (URL) to get teleconsultation services including having video calls with reputable doctors from partnering hospitals across the country.

The platform will be offered for free to patients visiting the Nusa Waluya II Floating Hospital, one of doctorSHARE's programs in reaching remote areas, with the aim of bringing a more integrated healthcare accessibility to people living in rural areas of Indonesia. Other doctorSHARE's programs are expected to benefit from the collaboration soon.

Alibaba Cloud hopes to work with our local partners to improve access to healthcare services for Indonesians especially during such a major pandemic, not only for residents living in big cities but also those in remote and rural areas who may lack of access to necessary medical information.

"Medico has the same vision as doctorSHARE and Alibaba Cloud to increase accessibility of healthcare to even the most remote parts of Indonesia. Using our telemedicine platform, we will be able bridge the gap closer. Our system is versatile and secure, and we want more healthcare providers to utilize it to further narrow the gap." said Grace Tahir, co-founder of Medico.id.

"This implementation of the telemedicine system would be instrumental in facilitating doctor-patient interactions, especially for specialist and subspecialist services. It shall benefit more than 2,000 general patients and 60 major/minor surgical patients being treated monthly in Nusa Waluya II Floating Hospital,"said Deputy Managing Director of doctorSHARE, Tutuk Utomo Nuradhy.

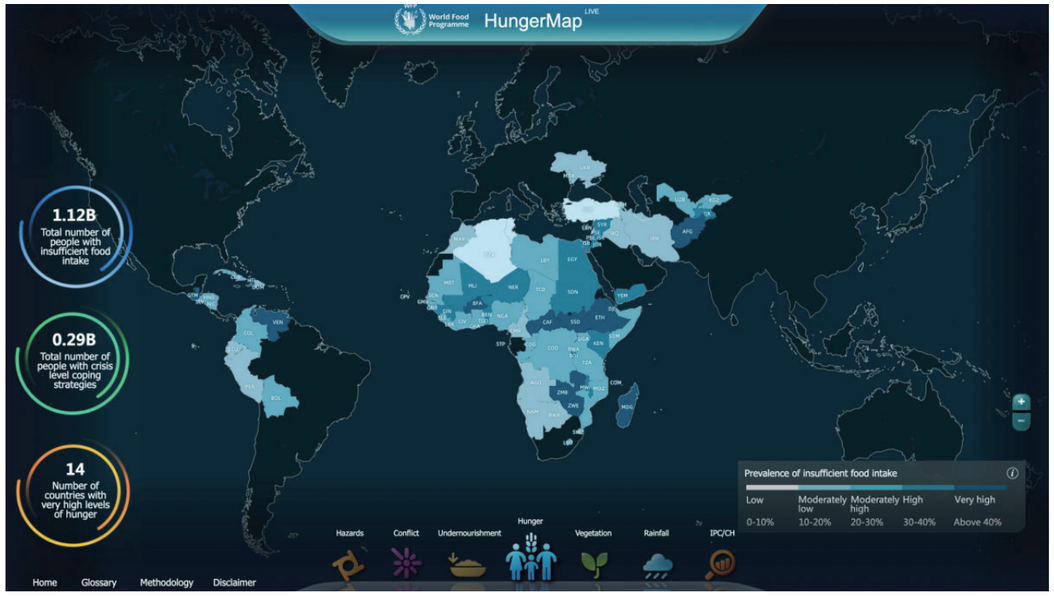
Nusa Waluya II Floating Hospital

Tech for Care

A World with Zero Hunger

In 2015 the global community adopted the 17 Global Goals for Sustainable Development to improve people's lives by 2030. One of the goals is Zero Hunger – pledges to end hunger, achieve food security, improve nutrition and promote sustainable agriculture, and is the priority of the World Food Programme.

Assisting almost 100 million people in around 83 countries each year, the United Nations the World Food Programme (WFP) is the leading humanitarian organization saving lives and changing lives, delivering food assistance in emergencies.



Hunger Map LIVE, a Digital Map to Improve Responses to Food Crises Across the Globe

In 2018, under the agreement of WFP and Alibaba, Alibaba Cloud becomes an ally of WFP to develop a digital "World Hunger Map" to monitor the status of global hunger and shorten emergency response time.

In the next year, on Oct. 16, World Food Day, "Hunger Map LIVE", the global hunger monitoring system was born. Alibaba Cloud supports the system with Artificial Intelligence (AI), machine learning and analytics technology to predict and track the magnitude and severity of hunger in over 90 countries in close to real-time.

Based on the most up-to-date information on food security on one central platform, WFP, the broader humanitarian community can monitor progress and identify trends early, to make better informed decision and improve efficiency in response time.

"Hunger Map LIVE is a global public good, an online resource that will be available for anyone to use," said WFP's Chief Economist Arif Husain who oversees the team. "Food insecurity is usually measured in a static way even though we know that it is dynamic because it changes all the time. With the application of this technology, the global community has access to daily food insecurity estimates, and that is revolutionary."

Launching Hunger Map LIVE is only the first milestone of this long-term cooperation in fighting hunger.

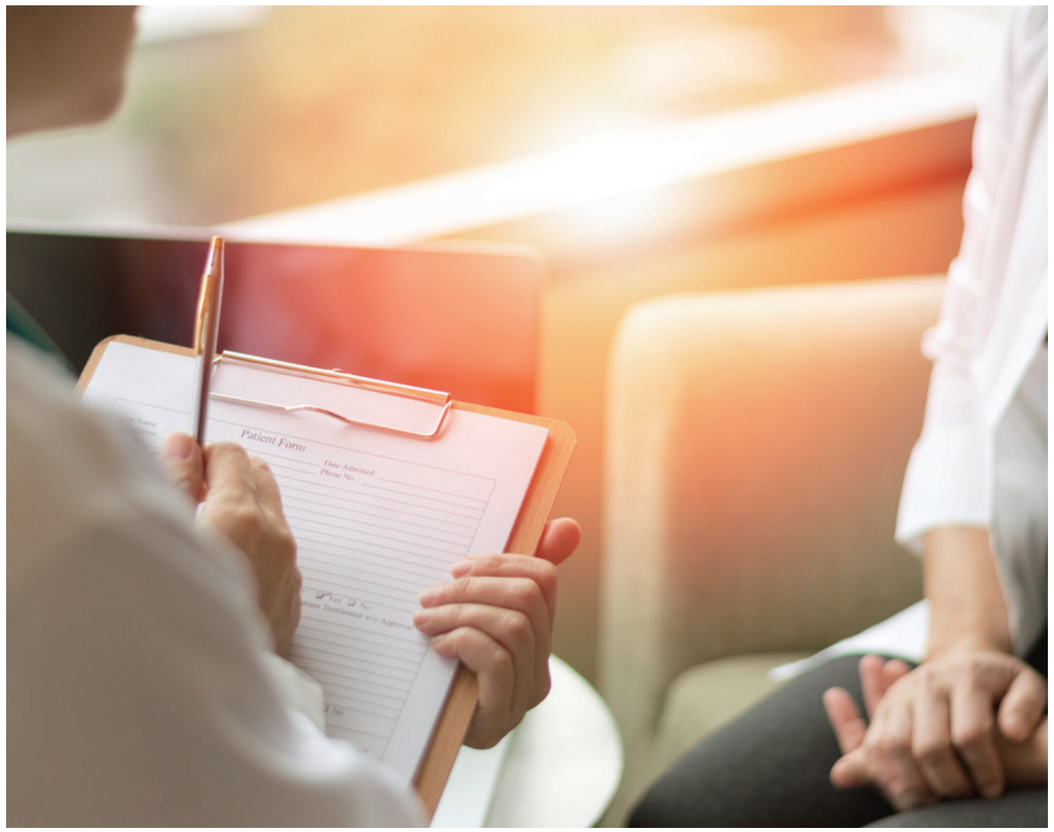
Reference:

https://www.wfp.org/zero-hunger

https://www.wfp.org/news/wfp-and-alibaba-enter-strategic-partnership-support-un-sustainable-development-goa

Tech for Cultivation

Bringing Virtual Training to Rural Doctors



There are around 1,100 Grade III Level A hospitals in China while there are 986,000 hospitals and clinics in towns and countries; the national medical resources allocation is completely imbalanced.

Most doctors start their careers with the dream of curing sickness and saving patients. However, many rural doctors have less contact with patients than medical care practitioners in cities. Shortage of work experience results in loss of their confidence. Less practices makes it difficult for the rural doctors to make appropriate diagnosis of some diseases in a short time.

Traditional medical education is a sort of one way learning. It is hard to get feedback when learning.

Based on Alibaba Cloud Big Data, database, security solutions, Carefun App created "Virtual patients" where human-computer interaction enables doctors to make independent decisions by themselves. The whole diagnosis process can be conducted in a virtual manner with virtual patients. Doctors treating a virtual patient online is an exploration process. Doctors can get more and more familiar with different cases, improve diagnosis abilities and build up expertise and experience.

Technology is playing a more powerful and more effective role in changing our lives and also the imbalance between the urban and rural medical resources.

Reference:

https://www.alizila.com/alibaba-cloud-makes-call-use-tech-for-change/

Guangzhou Residents Joined the Campaign and Dumped Their Waste to the Machine

Tech for Conservation

Turning Waste to Good

In China each person produces 1KG trash per day. At present, household garbage in 660 cities in China has exceeded 250 million tons per year. Urban garbage is still increasing by tens of millions of tons year by year.

Developing a more efficient and smarter incineration technology and implementing widespread recycling of waste into clean energy is a major goal of China and also a common concern for people around the world. Turing more garbage into energy will create immeasurable value to sustainable development on the earth.

Alibaba Cloud applies the AI algorithm to the boilers of thermal Waste-to-Energy (WtE) plants. Using technology and algorithms, the waste incineration process is optimized to be more stable and efficient. A fixed amount of waste can generate bigger amount of steam in a more steady way, which turns into more electricity. With the AI algorithm, a medium and large sized waste-to-energy power group can generate at least an extra 150,000 kWh of electricity in one day, which is equal to the electricity needed for supporting Canton Tower Lights Show for two months.

The AI algorithm will be used by about 26 cities in China for Waste-to-Energy processing.

In 2019, Alibaba Cloud initiated the “one more kWh electricity” campaign in Guangzhou to raise awareness of sustainable development. The AI-powered waste to energy technology, transformed interactive equipment, was brought to the neighborhood and central business district

for people to try and use. Residents threw in their daily waste to the big machine and AI algorithm will calculate in real time how much electricity can be generated, pushing up the electricity meter displayed on it. Through the campaign people realized how the trash can be turned to “one more kWh electricity” which enables your water heater to run for 40 minutes, your coffee machine to work for 1 hour and your washing machine to clean for 6 hours.

Technology makes the world a better place, even the trash can be turned into good.

Reference:

Alibaba Cloud “Tech for Change” Weibo Webpage

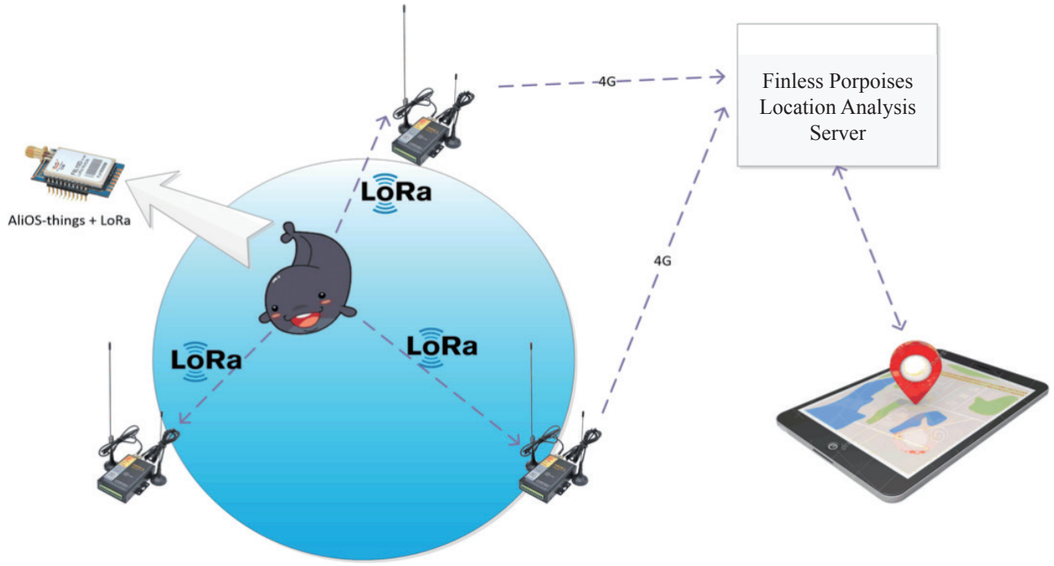
Tech for Conservation

IoT Technology Help Protect Endangered Wild Animals

The Yangtze River, the longest river in Asia, used to be one of the only two rivers in the world that was home to two different species of dolphin—the Yangtze finless porpoise and the Baiji dolphin. However, in 2006, the Baiji dolphin was declared functionally extinct. Its close cousin, the Yangtze finless porpoise, is known for its mischievous smile and has a level of intelligence comparable to that of a gorilla. It is also critically endangered now.

Previously, it was difficult to locate and track finless porpoises and other marine cetaceans.

In terms of positioning technology, satellite positioning or radio positioning was used as common practice in the field of wildlife protection before, but radio signals could not be transmitted under the water, so signal positioning could only work when the finless porpoise was out of the water. A porpose only surfaces for 0.81 seconds. Both satellite and wireless positioning takes 2 to3 seconds which doesn't work either.



The LoRa technology Helps Track Finless Porpoises More Efficiently and Precisely

The traditional tracking device uses metal darts fitted into animals (6-725 px) for marine cetacean location and tracking study. However, the darts are too big to be applied in petite finless porpoise, which are much smaller in size.

Alibaba Cloud supports Chinese Academy of Sciences to build LoRa Wildlife Protection system with IoT technology. The technology can help track and protect finless porpoises. It can also be explored for other wildlife conservation projects.

Relatively speaking, LoRa technology has low power consumption, is on an open network and supports long distance. A battery is required to provide power for 10 years. Compared to wireless network, the coverage of single base station is ten times wider. Improvements have been made in connection speed, positioning accuracy, as well as transfer speed and capacity.

In the future, LoRa technology will also be used in various fields such as fire fighting and children protection.

Reference:

https://greencode.aliyun.com/home/greenCodeDetail.htm?spm=5176.100102.GreenCode.3.773939adbNOO3c&id=15

https://www.worldwildlife.org/species/yangtze-finless-porpoise

Tech for Climate

Digitalized Flood Control and Disaster Management

For many years, flooding disasters seriously threatened the safety of people's lives and property. Making effective flood control, advance preparations, early warning of flood peaks and coordination in dealing with the aftermath are of vital importance.

Since July of this year, heavy rains continued in many parts of China, causing serious damage. Alibaba Cloud responded fast, used cloud computing, big data and artificial intelligence technology to help analyze flood risks, predict flood trend and make disaster response plans. This improved flood control decision making, reducing loss caused by the flood disaster.

Some key initiatives include:

The Flood Prevention and Control Platform Dashboard

Intelligent Robot

Time is life: timely notification for evacuation in the affected areas is the first priority. In the past, the traditional way of informing people through phone calls and radio was inefficient.

Alibaba Cloud donated an "intelligent flood situation robot" to ensure the timely and safe evacuation of people in the disaster areas. The robot can quickly notify people in disaster-stricken areas in the form of voice and reminders. A robot can handle more than 5,000 concurrent notification tasks, equivalent to having 5,000 men making calls at the same time, and can complete 100,000 emergency calls in one hour.

The robot is based on Alibaba Cloud intelligent outbound call platform. This technology has also been used for parcel delivery and intelligent customer service. This time, according to the flood situation, the algorithm is optimized to provide digital assistance for flood control.

Reference:

https://greencode.aliyun.com/home/greenCodeDetail.htm?spm=5176.100102.GreenCode.9.773939adA4mMov&id=61

Flood Prevention and Control Platform

In July, Zhengzhou flood control platform was officially launched with the support of Alibaba Cloud. The flood situation and information can be used to predict the situation of 51 vulnerable areas under different rainfall conditions. The dynamic situation and latest status is reflected in one dashboard for the flood control headquarter to make quick and reasonable decisions.

People can also take pictures and report the flood situation in the APP. The digital flood control platform can identify key dangerous areas and issue early warning and evacuation information as early as possible.

Bank Service Hall On Cloud

Affected by the flood, some bank branches could not operate and serve customers normally. Many self-employed and small businesses were in urgent need of funds to quickly resume normal operations, so it was particularly urgent for banks to provide normal services.

In order to support post-disaster reconstruction and resumption of production, Alibaba Cloud announced a free "Cloud-based service hall" solutions to banks in disaster-hit areas during the flood season, which enabled bank branches to provide online credit application services for local companies through videos and other digital channels.

Tech for Change

Warmth and Kindness in Between Lines of Code

The “Green Code” is a philanthropy platform initiated by Alibaba Cloud aiming to support charity organizations and public good with inclusive technologies. In two years after its founding, the platform worked with more than 300 public welfare institutions and enrolled 5,500 technical volunteers providing technical services for 200 public welfare projects covering poverty alleviation, education, elderly care, children care, medical care, and environment protection.

And there is a warm story behind its birth.

In September 2017, Mr. Yu Xingyou, in his 80s, learned by chance that he had a long lost cousin, who had passed away. He thought cloud computing could support distributed collaboration and this approach may be able to compute and identify the Yu's who are scattered around the world. So he came up with the idea of a "genealogy revision with cloud computing". At one of the Alibaba

Alibaba Cloud Technician Built a Digital Family Network for Mr.Yu Xingyou

Cloud events in Chengdu, he shared his idea with one Alibaba Cloud engineer, who spent 3 days and built a "family network" for Mr. Yu. Now Mr. Yu can see Yu’s family tree across nine generations.

Reflecting on this good deed, engineers at Alibaba Cloud started thinking about how technology can bring maximized value to society and ordinary people.

They also found that many public welfare and charity organizations are in need of digital technologies but do not know how to start. They also don't know how to find professionals to help them.

With this in mind, engineers and programmers of Alibaba Cloud established the “Green Code” platform. The platform builds the bridge between technician volunteers and non-profit organizations. Through the platform the volunteers have had the opportunity to support more public good and social welfare projects with their expertise and experience via lines of codes they develop, making the world a better place.

Reference:

https://greencode.aliyun.com/home/greenCodeDetail.htm?spm=5176.100102.GreenCode.7.773939adA4mMov&id=67