

AI for Good: Global impact



AI for Good Global Summit: Now stronger than ever

Houlin Zhao

ITU Secretary-General

■ Artificial Intelligence (AI) has enormous potential to accelerate progress on all 17 of the United Nations Sustainable Development Goals.

Every year, we see progress across the world. But so much more can be done.

That's why ITU joins forces with partners each year to put on the AI for Good Global Summit.

Now in its fourth year, the Summit has gone virtual due to COVID-19 travel restrictions. It is now all year, always online.

This continuous approach is allowing us to broaden the AI for Good movement wider than ever before.

ITU continues to draw upon expertise from the AI for Good Global Summit community and has launched an [AI for Good Webinar Series](#) delving into promising use cases of AI in healthcare, smart mobility, food supply, gender inclusivity and environmental global challenges, including how to combat COVID-19.

In this edition of ITU News Magazine, you will find a range of useful expert insights on how AI is being leveraged responsibly to improve lives – and how ITU is weaving relevant AI for Good initiatives into its work to ensure our Union is doing all it can to seize the opportunities at hand. ■



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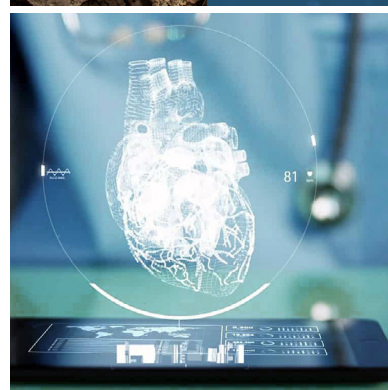
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Follow us at the AI for Good Global Summit





2020 AI for Good Global Summit to scale AI-powered problem solving for global impact

■ Ten years remain to achieve the United Nations Sustainable Development Goals (SDGs). Leaders in AI and humanitarian action will convene at the 2020 AI for Good Global Summit with strong intent to ensure that “AI for Good” solutions achieve a scale matching that of the ambitions captured by the SDGs.

The [AI for Good Global Summit](#) is the leading United Nations platform for inclusive dialogue on AI. The summit identifies practical applications of AI to accelerate progress towards the SDGs and builds collaboration to assist these applications in achieving global impact.

Now in its fourth edition, this year’s AI for Good Global Summit is being held online all year, and will continue to connect AI innovators with public and private-sector decision-makers in the interests of stimulating the discovery and delivery of “AI for Good” solutions for all.

“

Three editions of the AI for Good Global Summit have recognized the significance of the leap from AI promise to global impact.

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Houlin Zhao

ITU Secretary-General

Join the conversation on social media using the hashtag #AIforGood



The 2020 summit is co-organized by the International Telecommunication Union (ITU) – the United Nations specialized agency for information and communication technologies (ICTs) – and the XPRIZE Foundation, in partnership with Switzerland, the Association for Computing Machinery (ACM) and a wide variety of sister United Nations agencies.

The 2017 summit marked the beginning of a global dialogue on the potential of AI to act as a force for good. The action-oriented 2018 and 2019 summits gave rise to numerous “AI for Good” projects including an “AI for Health” Focus Group led by ITU and the World Health Organization, an ITU Focus Group on “AI for Autonomous and Assisted Driving”, and an open framework for collaboration in “AI Commons”.

The pursuit of global impact

The pursuit of global impact will be the defining feature of the 2020 summit.

“Three editions of the AI for Good Global Summit have recognized the significance of the leap from AI promise to global impact,” said ITU Secretary-General Houlin Zhao. “We see renewed resolve within the AI for Good community to create the conditions necessary to make this leap and accelerate progress towards the achievement of the SDGs.”

“With only 10 years remaining to achieve the United Nations SDGs, AI is sure to be an invaluable technology to help accomplish these critical goals that are designed to ensure a more sustainable and equitable future for all,” said XPRIZE CEO Anousheh Ansari. “At XPRIZE, our mission is to facilitate radical breakthroughs for the benefit of humanity, and our ongoing collaboration on the AI for Good Global Summit is one way we hope to accelerate safe and ethical development of AI and machine learning technology.”

The summit attracts a unique cross-section of AI experts from industry and academia, global business leaders, Heads of United Nations agencies, ICT ministers, non-governmental organizations, civil society and artists.

Speakers

Over 100 speakers are expected and early confirmations include:

- ▶ Yoshua Bengio – Founder and Scientific Director, Montreal Institute for Learning Algorithms (MILA); ACM Turing Award Winner 2018
- ▶ Anousheh Ansari – CEO, XPRIZE Foundation; Space Ambassador
- ▶ Stuart Russell – Professor, UC-Berkeley; Adjunct Professor, UC-San Francisco; Author of “Human Compatible AI”
- ▶ Stella Ndabeni-Abrahams – Minister of Communications and Telecommunications, South Africa
- ▶ Francesca Rossi – IBM AI Ethics Global Leader
- ▶ Pascale Fung – Professor, Department of Electronic & Computer Engineering, Hong Kong University of Science & Technology; Director of Centre for Artificial Intelligence Research (CAiRE)
- ▶ Shwetak Patel – Washington Research Foundation Entrepreneurship Endowed Professor in Computer Science and Engineering and Electrical Engineering at the University of Washington; ACM Computing Prize Winner 2018
- ▶ Maggie Carter – Principal, Disaster Response Program, Amazon Web Services (AWS)
- ▶ Elizabeth Bramson-Bodreau – CEO, MIT Technology Review
- ▶ Vicki Hanson – CEO, ACM
- ▶ Anja Kaspersen – Director, United Nations Office for Disarmament Affairs
- ▶ Lucas di Grassi – Formula E Racing Champion; CEO, Roborace; United Nations Clean Air Ambassador

Please visit the summit website for more information on the latest speakers, breakthrough sessions, solution tracks and demos.



Generating “AI for Good” projects and breakthroughs

The summit is designed to generate “AI for Good” projects able to be enacted in the near term, guided by the summit’s multi-stakeholder and inter-disciplinary audience. It also aims to ensure trusted, safe and inclusive development of AI technologies and equitable access to their benefits.

The 2020 summit aims to generate AI breakthroughs in climate and environmental action, the elimination of hunger, gender equality, health care, smart and safe mobility, the preservation of cultural heritage and the protection of access to trustworthy information.

An “AI Innovation Factory” will showcase new “AI for Good” ideas, crowd-sourced AI challenges and promising AI start-ups. A “partner day” will offer potential AI adopters an audience with leading AI experts and educators.

Cutting edge R&D

Cutting edge AI research and development and AI inspired performances from ground breaking artists and musicians will be featured as virtual live demos now that the Summit has gone digital. ■

Organization and partnership



The summit is organized in partnership with the following sister United Nations agencies:

CTBTO; FAO; ICAO; ILO; IMO; IOM; UNAIDS; UNCTAD; UNDESA; UNDP; UNECE; UNEP; UNESCO; UNFCCC; UNFPA; UNGP; UN Habitat; UNHCR; UNICEF; UNICRI; UNIDIR; UNIDO; UNISDR; UNITAR; UNODA; UNODC; UNOOSA; UNRISD; UNU; UN Women; UNWTO; WBG; WFP; WHO; WIPO; and WMO.

Sponsors



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3 'Breakthrough' Tracks and 4 'Solutions' Tracks

The AI for Good Global Summit contains "Breakthrough" sessions and "Solutions" tracks designed to provide focus in key areas.

Breakthrough

AI for Gender Equality

The AI for gender equality breakthrough session addresses current gender issues in AI, including but not limited to algorithmic bias and data inclusivity. The goal of this session is to identify AI solutions that empower underrepresented communities and enable an equitable future for humanity.



AI for Food

The AI for food breakthrough session tackles issues around food insecurity, including but not limited to the impact of COVID-19 on food systems. The goal of this session is to identify how AI can help us reach zero hunger and shape the food landscape of tomorrow.



AI for the Environment

The AI for the environment breakthrough session will explore how AI solutions can shed light on environmentally destructive practices as well as protect our world. The goal of this session is to take urgent action in combatting climate change, to identify solutions to sustainably use our planet's resources, and to re-imagine the future of the Earth with AI.



AI for Trust Solutions

The AI for trust solutions track will establish a concrete, inclusive and actionable discussion on how AI-enabled solutions can help achieve the Sustainable Development Goals for peaceful, well-informed sustainable communities, the advancement of public access to truthful information, and the protection of fundamental freedoms as related to the digital society.



AI for the Preservation of Culture and Natural Heritage

The AI for the preservation of culture and natural heritage solutions track intends to facilitate the matchmaking of these ideas, challenges and AI solutions among the participating stakeholders. This track will accommodate AI and data science experts and academics, cultural heritage institutions coming from various countries, and experts with relevant practical use cases. The overarching goal is to advance the area of AI for culture and historical heritage preservation.



AI for the Future of Smart Mobility

The AI for the future of smart mobility solutions track will establish a concrete, inclusive and actionable discussion on how AI-enabled solutions can help achieve the Sustainable Development Goals for improving in-transit traffic safety, developing energy-/environment-efficient vehicles, transportation systems and infrastructure and providing inclusive and accessible mobility opportunities for all.



AI for Health Solutions

AI can improve the quality of affordable services, optimize the distribution of resources in underdeveloped and understaffed communities and create inclusive and responsive solutions for health care, diagnosis, triage or treatment decisions. However, it is not enough to deploy these solutions in the wild. We must also examine how these applications can elevate the quality of work and life that medical practitioners have in the field, including but not limited to reducing burnout and creating more avenues for better work-life balance. To this end, The AI for health solutions track will extend this work, by identifying new ways in which AI can improve healthcare services and the profession at large.



Solutions

International standards for an AI-enabled future

ITU News caught up with Chaesub Lee, Director of the [ITU Telecommunication Standardization Bureau](#), to learn more about the latest ITU standards projects addressing AI and Machine Learning and the value of the AI for Good Global Summit.

Where do we stand today in terms of AI applications and how might that evolve?

🌟 Innovation by and of AI is accelerating, and this is evidenced by the contributions driving ITU's work. AI and Machine Learning are gaining a larger share of the ITU standardization work programme in fields such as network orchestration and management, multimedia coding, service quality assessment, operational aspects of service provision and telecom management, cable networks, digital health, environmental efficiency, and autonomous driving.

But AI and Machine Learning are finding very practical applications across industry sectors – applications with considerable potential to act as a force for good.

The scope of debate around AI extends far beyond the scope of any single organization. This is why ITU has called for an inclusive global dialogue on the implications of AI for the future of our society – a dialogue that is anchored by the [AI for Good Global Summit](#).

What value do ITU and the broader "AI for Good" community draw from the AI for Good Global Summit?

🌟 Alongside recent breakthroughs, new partnerships are also supporting growing confidence in AI. The AI for Good Global Summit continues to offer valuable support to the "AI for Good community" in creating and sustaining these partnerships.



“Alongside recent breakthroughs, new partnerships are also supporting growing confidence in AI.”

Chaesub Lee
Director, ITU
Telecommunication
Standardization Bureau



Experts from different fields are coming together to align incentives for innovation and solve problems with AI. We see connections forming among AI specialists, AI users, data owners and experts in various domains to benefit from AI applications – domains where AI could make key contributions to sustainable development.

The United Nations Sustainable Development Goals (SDGs) provide the guiding light to this innovation.

Inclusive dialogue helps all stakeholders to build an understanding of their respective roles in nurturing ICT innovation. This dialogue supports the development of new partnerships and clarifies the contributions expected of various stakeholders, including the contribution expected of ITU standardization. For example, the motivations behind initiatives such as the ITU Focus Groups on “AI for Health” and “AI for autonomous and assisted driving” and the new Global Initiative on “AI and Data Commons” were first elaborated at the AI for Good Global Summit.

Could you share more insight into the aims of these initiatives?

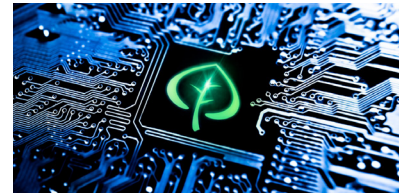
🌟 The ITU Telecommunication Standardization Sector (ITU-T) Study Groups are where ITU members work together to develop international standards.

ITU-T Focus Groups are flexible structures that are operational for a short period of time (typically 1-2 years). They accelerate studies in fields of growing strategic relevance to the ITU membership. Open to all interested parties, these groups prepare a basis for related standardization work in ITU-T Study Groups.

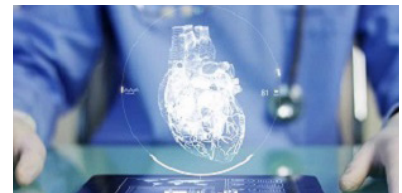
Let me highlight five open platforms advancing various aspects of AI and Machine Learning.



The ITU Focus Group on “Machine Learning for Future Networks including 5G” is defining the requirements of machine learning as they relate to interfaces, protocols, algorithms, data formats and network architectures.



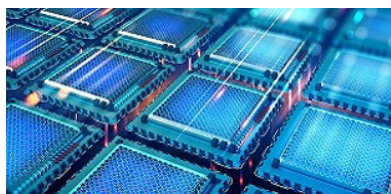
The ITU Focus Group on “Environmental Efficiency for AI and other Emerging Technologies” will benchmark best practices and describe pathways towards a standardized framework to assess environmental aspects of the adoption of emerging technologies.



The ITU Focus Group on “AI for Health”, driven in close collaboration by ITU and WHO, is working towards the establishment of a framework and associated processes for the performance benchmarking of “AI for Health” solutions.



The ITU Focus Group on “[AI for Autonomous and Assisted Driving](#)” is working towards the establishment of international standards to monitor and assess the behavioural performance of the AI “drivers” in control of automated vehicles.



The new Global Initiative on “[AI and Data Common](#)”, established in January 2020, aims to support AI for Good projects in achieving global scale. The Initiative will offer assemblies of resources to launch new AI projects aligned with the SDGs, and scale them up fast.

How are ITU standards addressing AI and Machine Learning?

Information and communication technology (ICT) companies in the networking business are introducing AI and Machine Learning as part of their innovations to optimize network operations and increase energy and cost efficiency.

New ITU standards provide an architectural framework for the integration of Machine Learning into 5G and future networks (ITU [Y.3172](#)), a framework to evaluate intelligence levels across different parts of the network (ITU [Y.3173](#)), and a framework for data handling in support of machine learning (ITU [Y.3174](#)).

These “Machine Learning for 5G” standards are also guiding contributions to a new [ITU Global Challenge on AI and Machine Learning in 5G](#).

AI and Machine Learning play an important role in multimedia coding, an area of ITU standards work known for the Primetime Emmy winning video-compression standards, ITU [H.264](#) MPEG-4 Advanced Video Coding (AVC) and High Efficiency Video Coding (HEVC, published as ITU [H.265](#) | ISO/IEC 23008-2), as well the upcoming Versatile Video Coding (VVC) to be complete before the close of 2020. ITU has also established a new working group (“Question”) on “Artificial intelligence-enabled multimedia applications” ([Q5/16](#)).



AI and Machine Learning are widely used in developing models to assess the quality of speech, audio and video, for example in ITU standards for the quality assessment of audiovisual streaming, in particular ITU [P.1203](#) (progressive-download and adaptive-bitrate AV) and ITU [P.1204](#) (video streaming services up to 4K).

New ITU standards address intelligent network analytics and diagnostics (ITU [E.475](#)) and the creation and performance testing of Machine Learning-based models to assess the impact of the transmission network on speech quality for 4G voice services (ITU [P.565](#)).

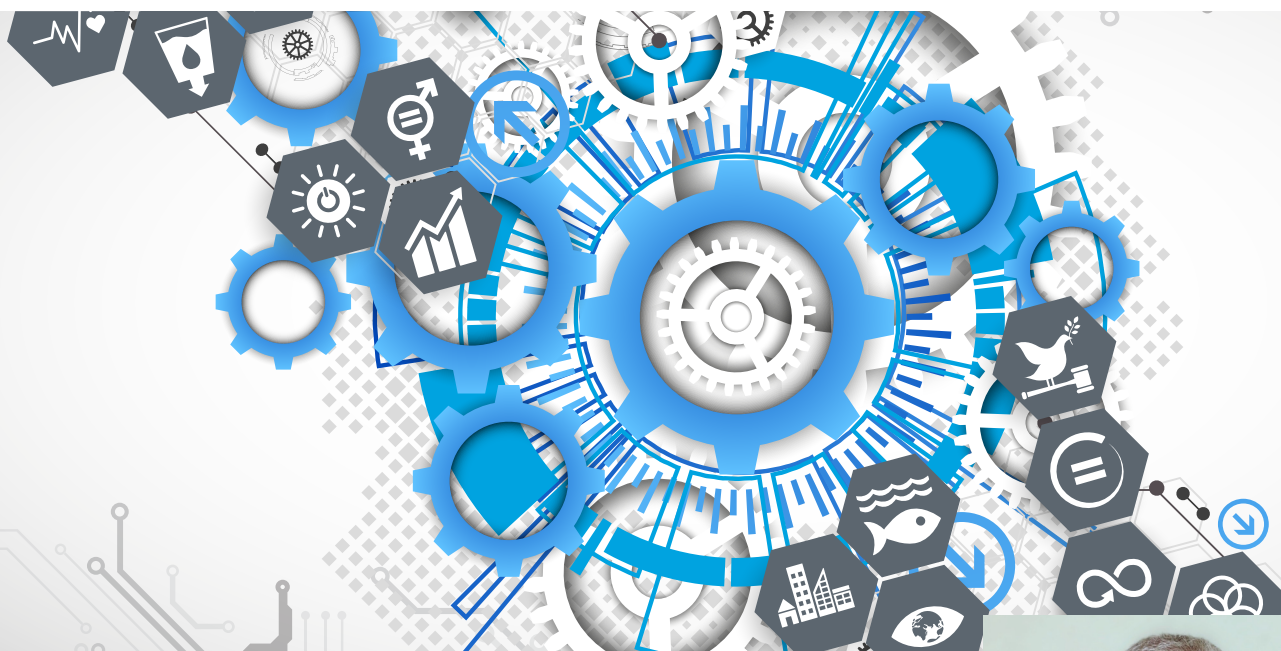
The lessons learnt developing ITU [P.1203](#), [P.1204](#), [E.475](#) and [P.565](#) will be presented by an upcoming ITU Technical Report and Supplement.

Other notable new ITU standards relevant to AI and Machine Learning address environmental sustainability, cable networks, and operational aspects of service provision and telecom management.

A new ITU standard specifies a datacentre infrastructure management (DCIM) system based on Big Data and Artificial Intelligence technology" (ITU [L.1305](#)), supporting DCIM systems in reducing the energy required to control datacentre temperature.

A new ITU standard provides the framework for a premium cable network platform to support industry in offering advanced multimedia services (ITU [J.1600](#)). It is the first of a new series of ITU standards on AI-assisted cable networks.

AI is one of the five characteristics of a new ITU framework to support smart service operation, network management and infrastructure maintenance (ITU [M.3041](#)). New ITU standards under development in this domain will address AI-enhanced telecom operation and management, energy saving for 5G Radio Access Networks with AI, and robot-based smart patrols of telecoms networks. ■



AI for Good – Time to move the needle

By Fred Werner

Head of Strategic Engagement, ITU Standardization Bureau

■ Artificial Intelligence (AI) has great potential to help us solve humanity's biggest challenges. From combatting climate change to cleaner energy to affordable health care and global pandemic response, the potential is there. However, our race to capture value from the technology challenges our ability to fully leverage AI to improve our quality of life and the world we live in. In order to use AI to make a difference, we must use AI for Good.

So what is good?

Different societies have different priorities, and a different understanding of what is "good". So how do we know what global challenges to work on? That is easy... We have the United Nations Sustainable Development Goals (SDGs) to guide us. A set of goals to improve the quality and sustainability of life on Earth by 2030.



“We must be vigilant that AI develops in a safe, secure, trusted and inclusive manner for all.”

Fred Werner

Head of Strategic Engagement,
ITU Standardization Bureau

“

You can argue so far that our main solution for AI is to understand consumer preferences better so we can influence their tastes and opinions. We do that in ways where companies create monopolies around the data collected on your tastes. We concentrate the value coming from those applications to very few hands. That, ladies and gentlemen, cannot be the smartest way of using Artificial Intelligence.

”

Jim Hagemann Snabe

Chairman of the Board, Siemens



For example, AI can help:

- 1.7 billion unbanked individuals gain access to digital financial services;
- reduce 1.3 million deaths annually on our roads;
- translate and educate in 2000 African languages;
- monitor and protect ecosystems;
- lower public health costs for millions;
- elevate the quality of data collection during pandemics without sacrificing privacy; and
- improve the quality and accessibility of civic services in overcrowded cities.

Moving the needle

The potential is undoubtedly there, but we are running out of time. We have 10 years left to achieve the 17 SDGs. AI solutions that we identify today need a few years to develop, a few more years to achieve scale, and then a few years after that to achieve the desired impact.

At a minimum, we are looking at a 10-year timeline, bringing us right up to 2030.

We have to act now if we want to move the needle.

Scaling AI for Good

There is no shortage of innovative AI for Good applications and use cases; from the use of smartphones for early diagnosis of disease and pandemic contact tracing, to robotics for increased agricultural productivity, machine learning for enhanced cybersecurity and optimized telecommunication networks.

“

We need to ignite a bigger conversation centered around how to use AI and data to help find scalable solutions to the biggest challenges facing humanity.

”

Anousheh Ansari

CEO, XPRIIZE Foundation



However, it is one thing to develop a solution in a high-tech lab and another thing to deploy and scale these solutions across developing countries, being mindful of harsh conditions on the ground and the societal, financial and political challenges involved.

Connecting “problem owners” with “AI innovators” needs to be as easy as ordering an Uber if we are serious about scaling AI for good. We need to help people speak the same language and identify open algorithms and publicly available data sets to help them solve their challenges.

The world needs an [AI and Data commons](#) as an enabling platform to scale AI for Good problem solving.

Firing on all cylinders

We have reached a landmark where half the world’s population is online. While some might see this as an amazing achievement, the fact remains that 50 per cent of the population remains unconnected. This is the equivalent of a V8 engine only firing on four cylinders. We are not benefiting from the shared art, culture, music, creativity, knowledge, wisdom and potential

problem-solving power of half the planet. It is crucial that we connect the remaining 50 per cent, so that we can start firing on all cylinders.

The eye in the sky

A number of the SDG targets could help to be achieved by tracking from space. For example, AI-powered satellite imagery analysis can be used to predict and prevent deforestation, track livestock with great accuracy, map poverty, provide data analytics for micro-insurance to small-hold farmers.

This is a potential gamechanger that requires massive-scale collaboration and significant funding. If we cannot see the needle, we cannot move it.

Will we become irrelevant?

AI is an extremely powerful technology that is not without its own risks and challenges. We must be vigilant that AI develops in a safe, secure, trusted and inclusive manner for all. We must be mindful of inherent biases already baked into our systems and avoid unintentionally codifying the worst of human behaviour into future algorithms.



“

Project Zero’ will work towards the establishment of a ‘global service platform’ — an enabling infrastructure and common capabilities — built on the automated analysis of satellite imagery, opening access to the infrastructure required for associated AI services to achieve immediate global reach.

”

Stuart Russell

Professor of Computer Science, University of California, and Adjunct Professor of Neurological Surgery, University of California, Berkeley

Will AI put us all out of work or even worse, make us irrelevant? AI experts themselves say that AI is too important to leave it to the experts alone. This issue affects every person, every company, every institution, and every government. It is imperative that we bring as many voices as possible to the table.

What do we want?

Through all of this, we should not lose sight of what is humanity, our own intelligence and what it is we truly want. It is often easier to blame technology, focusing on our fears and “what if” scenarios rather than discussing our core values and charting a beneficial path forward for humankind. If we do not know what we want for our future, how can we move the needle?

Audacious challenges

Many current global challenges seem impossible to solve and companies, institutions and governments alike do not have the means or the will to tackle them head on. Solutions can actually come from anyone, anywhere.

“

By bringing together AI technologists with leaders in government, industry, and humanitarian initiatives, new ways to apply AI to pressing world challenges are imagined and realized.

”

Vicki Hanson

CEO, Association for Computing Machinery (ACM)



We need to find innovative ways to incentivize and mobilize the power of the crowd, combined with AI to unlock new breakthroughs and solutions.

Pathways forward

So where do we begin? The [AI for Good Global Summit](#) is the leading action-oriented, global & inclusive United Nations platform on AI. The Summit is organized by the ITU with XPRIZE Foundation, in partnership with 36 UN sister agencies, ACM and our strategic partner Switzerland.

The goal of the Summit is to identify practical applications of AI to achieve the SDGs and scale those solutions for global impact.

The Summit has delivered on its action-oriented promise, giving rise to the AI Commons and generating numerous AI for Good projects in fields including education, health care and wellbeing, social and economic equality, space research, and smart and safe mobility.

Additionally, the Summit has generated the new [ITU Focus Group on “AI for autonomous and assisted driving”](#) that will work towards the establishment of international standards to monitor and assess the performance of the AI “Drivers” steering automated vehicles.

Work continues on projects that were ideated at earlier summits, such as the [ITU Focus Group on Artificial Intelligence for Health \(FG AI4H\) with WHO](#), working towards the establishment of a framework and associated processes for the performance benchmarking of “AI for Health” algorithms.

All year, always online

Due to recent developments concerning COVID-19, the 2020 edition of the AI for Good Global Summit will now be presented as a continuous digital event, [featuring weekly programming](#) across multiple formats, platforms and time-zones, including keynotes, expert webinars, project pitches, Q&As, performances, demos, interviews, networking and more.

We see this as an opportunity to scale AI for Good and reach even more people, supporting our goal of being the most diverse and inclusive platform around beneficial AI. With a wider and more inclusive outreach, as well as year-long visibility, our new event format provides partners, speakers and supporters with a much larger, more visible opportunity to connect problem owners with AI problem solvers and work together on actionable projects that shape the future of AI for Good.

The digital edition of the AI for Good Global Summit has already begun with the launch of the AI for Good Webinar series, AI for Good Innovation Factory, weekly AI for Good artists, and more. As the year progresses, the Summit will make its way through the many confirmed AI for Good sessions and speakers from the 2020 Summit programming, and will also tackle more region-specific content.

The time is now to...

- Act – Create practical AI for Good solutions aligned with the SDGs through the breakthrough sessions and innovation factory.
- Scale – Use the [Global Initiative on AI and Data Commons](#) as an enabling platform to scale AI for Good.
- Connect – Ensure that the remaining 50 per cent of the world can fire on all cylinders.
- Be vigilant – Look out for inherent biases, safety and security risks.
- Monitor – Use real-time tracking to monitor our progress towards achieving the SDGs.
- Humanize – Focus on our own intelligence and what we really want for our future.
- Move the needle – Employ innovative problem solving methods to bring about radical breakthroughs for the benefit of humanity. ■



Join the global initiative on 'AI and Data Commons'

■ Datasets relevant to sustainable development, expertise in AI and humanitarian action, and "AI for Good" projects with ambitions to achieve global impact – these are the three key pillars of the [Global Initiative on AI and Data Commons](#).

The [AI for Good Global Summit](#) has showcased numerous AI projects with promise to advance the United Nations Sustainable Development Goals (SDGs). But, despite their promise, these projects face considerable challenges in gaining the scale necessary to achieve global impact.

The Global Initiative is supporting the AI for Good community in overcoming these challenges.

Impact on a global scale will require common enabling infrastructure – "AI and Data Commons" – comprising shared knowledge, datasets and problem-solving approaches to stimulate the development and application of AI for Good projects.

The Initiative is open to all interested parties.

Your responses will assist the initiative in matching your interests to projects, working groups and new e-meetings.

An open framework for collaboration

The Global Initiative is an open framework for collaboration akin to the Commons it seeks to create – a decentralized system to democratize problem-solving with AI.



Complete this [form](#) to express your interest.

The Initiative will offer assemblies of resources to launch new AI projects aligned with the SDGs, and scale them up fast.

It will connect AI specialists, AI users, data owners and experts in domains to benefit from AI applications, helping them to align incentives for innovation and develop AI solutions to precisely defined problems. AI development and application will build on state-of-the-art infrastructure, enabling AI solutions to scale with the help of shared datasets, testing and simulation environments, AI models and associated software, and storage and computing resources.

Three workstreams

The Initiative adopts a structure elaborated by a [January 2020 roundtable](#) welcoming some 100 representatives of industry, academia, government, United Nations agencies and technical standards bodies.

It will build on standards and frameworks under development globally, to the mutual benefit of their development and implementation.

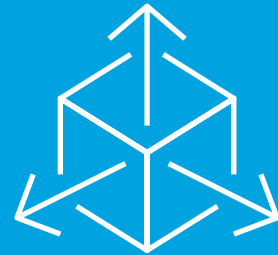
A Workstream on “Repositories” will curate resources spanning from knowledge and AI capabilities to directories of experts, ongoing AI for Good projects, and initiatives developing relevant standards and frameworks. It will support the connection of problem statements with projects pursuing solutions and identify factors influencing project scalability and sustainability.

A Workstream on “Marketplaces” will enact a connection to marketplaces of datasets and AI models, capturing knowledge supporting problem solving with AI. It will study incentives and other considerations for contributions of datasets and AI models to the Commons.

A third Workstream on “Projects scaling” aims to scale up existing projects and initiatives, supporting inclusive access to AI and data as tools to advance sustainable development.

- “Project Zero” will work towards the establishment of a “[global service platform](#)” built on the automated analysis of satellite imagery, opening access to the infrastructure required for associated AI services to achieve immediate global reach.

3 workstreams



- 1 Repositories
- 2 Marketplaces
- 3 Project scaling

- “Project One” will support the growth of [Technovation](#), an initiative helping young women and families to explore core concepts of AI and apply AI tools to solve problems in their communities as part of global competitions.
- “Project Two” will support the new [XPRIZE Pandemic Alliance](#) in collecting the data necessary to support globally coordinated responses to pandemics such as COVID-19. ■



COVID-19: How Korea used innovative technology and AI to flatten the curve

By ITU News

■ The Republic of Korea managed to contain COVID-19 without shutting down its economy, even though schools, museums and gyms – places where large numbers of people might gather in an enclosed space – were closed.

How did they do that?

The country's experience from the previous SARS outbreak and the more recent MERS (in 2015) enabled it to prepare in advance to combat COVID-19.

But there's a lot more to the success.

ITU listened to experts, live on 27 March from the Republic of Korea, during Episode 1 of the [ITU AI for Good webinar series](#), who shared their experience and response to the pandemic, and how innovative technologies were used to help flatten the curve in the country.

"We still need to learn more about [COVID-19's] characteristics – although we do know now

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Information and communication technologies are required to enhance traditional control measures and response measures, as well as for the development of innovative solutions.

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Seon Kui Lee

Director of the Division of Risk Assessment and International Cooperation at KCDC

that it is very contagious,” said Seon Kui Lee, Director of the Division of Risk Assessment and International Cooperation at the Republic of Korea’s Center for Disease Control and Prevention ([KCDC](#)). “Information and communication technologies are required to enhance traditional control measures and response measures, as well as for the development of innovative solutions.”

Here are some of the top reasons for success:

1 Fast-developed testing kit

An important part of the Republic of Korea’s strategy since the outbreak of the COVID-19 coronavirus has been widespread testing.

Thanks to artificial intelligence (AI), the development of a coronavirus testing kit happened fast in the country. Life sciences company [Seegene](#) came up with a [coronavirus testing kit in under just three weeks](#).

“To develop a test in such a short time would not have been possible without AI,” said Tai-Myoung Chung, Professor in the Department of Interaction Science at Sungkyunkwan University ([SKKU](#)).“

The testing kit, which would normally have taken two to three months to develop, was approved by the authorities within less than a week of its application, and also certified in the European Union.

Just a few weeks later, when an enormous cluster of COVID-19 coronavirus cases emerged in the city of Daegu, it was ready for testing.

The number of cases in the Republic of Korea peaked on 29 February, recording a total of 909 infections.

“Currently we have a total of 118 testing stations available nationwide, and have a testing capacity of 15 000 per day on average – with a maximum of 20 000 per day,” said Lee.

“It began with only lab testing, which later on expanded to local governments and also to the primary medical laboratories and hospitals,” said Dr Lee.

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To develop a test in such a short time would not have been possible without AI.

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Tai-Myoung Chung

Professor in the Department of Interaction Science at SKKU

Widespread testing in the Republic of Korea is targeted mainly at the high-risk groups, i.e. those with underlying diseases, the elderly, people who share homes, or live in crowded areas, and passengers at arrival points emanating from countries with cases of the coronavirus or other infectious diseases in the past such as SARS or MERS.

2

Smart quarantine information system

Dr Lee told the webinar audience that a quarantine information system was put in place after the MERS outbreak in 2015.



5 reasons why the Republic of Korea is a global leader in ICT

“Even before this COVID-19 outbreak, inbound travellers entering the Republic of Korea have been required to be checked for fever and to also to fill out a health questionnaire,” explains Dr Lee.

Inbound passengers with symptoms or having travelled to or from a risk country are placed in quarantine.

“Information about the inbound traveller from the Ministry of Justice, the Ministry of Foreign Affairs, airline companies and major telephone telecommunication companies are collected by KCDC’s quarantine information system,” says Dr Lee.

This enables frontline health workers to have a full record of the patient’s history of movements to help them quickly identify and isolate or treat the suspected coronavirus patient in a timely manner.

In-bound travellers are required to download a self-health check mobile app to their smartphone and submit their health conditions on this app during their 14-day incubation period, explains Lee.

With the collaboration of telecom companies, they also receive texts messages and receive guidance on how to report any COVID-19 coronavirus symptoms they might have developed while in quarantine.

3 Mobile phone technology data for contact tracing

As well as interviewing, officials use location data from mobile phones, credit-card transaction records and CCTV footage to trace and test people who might have recently come into contact with an infected person.

In many places, detailed maps are published showing precise movements of infected people, encouraging others who thought they might have been in contact with an infected person to seek out testing.

4 AI for improving diagnosis efficiency and patient classification

Lee explained that as part of the risk-mitigation strategy, KCDC established a system which categorized confirmed cases into four categories: mild, moderate, severe and very severe.

"Each category receives a different treatment and is admitted to a different facility according to the severity of the case," said Dr Lee.

Professor Chung gave examples of AI-based tools that are being used in the country to enable the quick diagnosis and classification of patients.

For example, **VUNO's** Chest X-Ray AI Image Support Decision Tool – an algorithm for identifying abnormal findings on chest X-rays – classifies intensive care patients by using X-ray images and can examine the lung within just three seconds.

JLK inspection, though numerous studies have developed an all-in-one medical platform called AiHub for disease diagnosis, which, it says, uses world class AI and big data technology from various imaging devices. It can examine lung disease within seconds using an AI technique that is being used in hospitals.

The company has also produced an AI-based, **hand-held chest X-ray camera** which can scan the chest in just three seconds and give a heatmap visualization of abnormal lesion.

5 Mobile apps for information sharing

Many mobile apps have been very quickly developed in the country since the outbreak of the virus.

They have proved useful for information sharing to advise and inform the public. "This would be a huge task for already stretched health-care staff and volunteers," claimed Professor Chung, saying that they can be developed quickly within a few days to a week.

For example, one mobile app has been developed to direct those who develop symptoms to the nearest available testing station. Another can indicate the nearest point of purchase for available masks.

A public chat robot using AI techniques is being used to inform on ways of responding to coronavirus, and another AI-based voice robot automatically calls people who need attention, explained Professor Chung.

6 Daegu: Making use of a smart city hub

Daegu City, where the majority of the Republic of Korea's cases of COVID-19 have occurred so far, is currently in the process of being transformed into a smart city (set to be completed in 2021).

The epidemiological investigation during the outbreak was able to use the data hub of the smart city, particularly for tracing patient routes, which Chung says is "critical to developing a new medicine as quickly as possible." ■

AI for Good Webinar Series



Find out more about how the Republic of Korea used ICTs and AI to flatten the curve on the coronavirus by listening to the recording of Episode No. 1 of the **AI for Good Webinar Series**.

The AI for Good Webinar Series is a free, live series of talks, interviews and panels, featuring inter-disciplinary experts whose ideas, insights and solutions can help humanity leverage AI for good.



COVID-19: Where are the self-driving cars and trucks?

By ITU News

■ At a time when people around the world are observing social distancing measures to halt the spread of the global COVID-19 pandemic, driverless mobility – which, by definition, offers mobility with minimal human interaction – seems more relevant than ever.

Yet, as developers and researchers around the world have [suspended real-world testing](#) of their autonomous vehicle fleets

due to health concerns amid the COVID-19 pandemic, it appears we are still a long way from a fully autonomous future.

Barriers to deployment

“2020 was billed as ‘Prime Time’ for the self-driving car industry, so where are the self-driving cars and trucks we were promised?” Bryn Balcombe, Chief Strategy Officer at Roborace and Founder

of the Autonomous Drivers Alliance (ADA), asked as he moderated the fifth episode (held on 24 April) of the [AI for Good webinar series](#) on COVID-19: *Where are the self-driving cars and trucks?*

The discussion looked at what barriers remain for autonomous vehicle deployment and how the future of self-driving vehicles may be reshaped following the COVID-19 pandemic.

One of the panellists, Michelle Avary, Head of Automotive and Autonomous Mobility at the World Economic Forum, pointed to three core stumbling blocks that autonomous vehicles face today.

"I think we need clarity on regulation globally – without a doubt, that's needed. But we also need technological validity, as well as business model validity," she said.

Slow moving deliveries – a potential business model?

A driverless future is often mentioned in the same breath as increased road safety, hailed as a means to reduce the [1.35 million global road fatalities every year](#).

But in the wake of the current pandemic, we need to expand the definition of "safety" in the automotive sphere to include different types of safety such as biosafety, said Avary.

The panellists agreed that the COVID-19 pandemic has highlighted a core business case for autonomous vehicle deployment within the [logistics and delivery space](#) – certainly in the near-term.

"What we saw coming out of China in using non-contact, low-speed, highly-automated vehicles for delivery in areas that were locked down, we really should explore more of these and think about where we can remove some of the biosafety risks to our essential workers," said Avary.

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Those companies that survive will be the ones that figure out that slow-speed delivery operations is the right way to go in the near-term.

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Missy Cummings

Duke Pratt School of Engineering, US

And as the global pandemic continues, the companies that can pivot to this slow-speed delivery of goods, such as groceries or medicine "have the best chance of surviving," said panellist Missy Cummings, Professor in the Department of Electrical and Computer Engineering, Duke Pratt School of Engineering, United States.

"I think that the COVID-19 scenario is going to really decimate the driverless car community," she said. "Those companies that survive will be the ones that figure out that slow-speed delivery operations is the right way to go in the near-term."

The COVID-19 crisis has reignited debates on the rapid deployment of autonomous vehicles



Despite current trends away from public transport systems – notably in China, which has seen a dramatic drop in ridership since the easing of the national COVID-19 lockdown – panellists saw this as the first step towards mass autonomous transit systems in the longer-term, as a way to meet current biosafety standards (i.e. social distancing measures) and address ongoing trends in on-demand transport.

While people can understand and predict

But before this can become a reality, both for the COVID-19 pandemic and beyond, the driverless future faces safety issues of another kind: “perception”.

“There’s still a problem with prediction in terms of predicting the behaviour of all the other road users and I think that’s actually something that will be coming to the fore as we progress in the perception quality system,” said Balcombe.

While people can understand and predict pedestrian intent, autonomous perception systems – image processing and machine learning probabilistic reasoning algorithms that help autonomous driving systems understand

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There’s still a problem with prediction in terms of predicting the behaviour of all the other road users...

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Bryn Balcombe

Chief Strategy Officer at Roborace and Founder of ADA

the world around them and act accordingly – are having to make the most reasonable guess about which course of action to take under the circumstances.

“When the system doesn’t perform the same way every time, even under the most benign conditions, then how can we ever put guarantees on its ability to navigate the world safely?” said Cummings.

But it is not just a simple hardware fix, she added. “You are not going to solve this problem by putting more sensors on a car, because until we figure out how to at least replicate in part judgment under uncertainty, all the sensors in the world are not going to solve that problem.”

One way to overcome this issue, suggested Avary, is to establish global minimum safety guidelines for perception systems.

A ‘vision test for cars’?

Additionally, Cummings called for the global autonomous vehicle community to establish “a vision test for cars” to continuously test and validate these technologies.

But any meaningful progress on road safety will rely on global cooperation among the private sector and governments, the participants agreed.

“We really need to make sure that we’re sharing the data in the learning more widely, because we don’t think that every single company and every single operator needs to learn safety first-hand,” said Avary. “There’s plenty of places to compete, but we don’t believe that core safety is one of them.”

So in much the same way that the global community is working together to contain the COVID-19 pandemic through the sharing of best practices in network maintenance and collaborating to ensure #LearningNeverStops, the automotive industry must come together to ensure the safe and steady roll out of autonomous vehicles – and increase road safety in all its forms, agreed participants. ■



Tech startups join AI for Good Innovation Factory with live pitching

By ITU News

■ At the first [AI for Good Innovation Factory Live Pitching Session](#) held on 15 May, tech startup entrepreneurs had 4 minutes each to pitch their artificial intelligence (AI) project remotely to a team of mentors.

During the webinar, 5 entrepreneurs had the opportunity to showcase their tech startup projects, whose solutions aim to accelerate progress to meet

any one of the United Nations Sustainable Development Goals (SDGs).

5 startup projects

Founder and CEO Mikela Druckman, presented UK tech startup [Grey Parrot](#), which offers a computer vision for waste management – targeting customers in the waste management industry.

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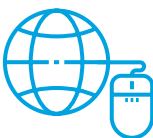
You've got to have problem and solution validation, and then product and market fit, so that customers agree that there is something they are willing to pay for.

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Stephen Ibaraki

Co-Chairman of ACM Practitioner Board

The 2020 AI for Good Global Summit is being held online throughout the year.



Iran Davar Ardalan, Founder and Chief Storytelling Officer presented [IVOW AI](#) and its product CultureGraph, an Enterprise API Platform that enhances consumer engagement through the lens of culture.

Founder Javier Cardona, presented the Latin-American tech startup [1DOC3](#) which provides easy access to doctors in the Spanish-speaking world.

Co-founder and CSO Kevin Lee, presented [EQ4ALL](#). Supported by the Republic of Korea's Ministry of Information and Communication Technologies, the tech startup has a mission to bring the deaf to have equal accessibility to information, education and communication.

Founder Markus Pohl, presented [Child Growth Monitor](#), a mobile app, released early because of COVID-19, that measures and diagnoses children for malnutrition.

Each project presentation was followed by a Q&A, which gave the opportunity for the tech startup entrepreneurs to receive advice and feedback from the mentors.

Tech for the deaf

Startup [EQ4ALL](#) helps deaf people have equal accessibility to information, education and communication.



What it takes for startups to succeed

Before the entrepreneurs got going, however, the session began with mentors sharing insightful tips on what it takes to be a tech entrepreneur – and opportunity-rich areas for innovation, such as AI and digital health.

"You've got to have problem and solution validation, and then product and market fit, so that customers agree that there is something they are willing to pay for," said Stephen Ibaraki, Co-Chairman of the Association for Computing Machinery (ACM) Practitioner Board.

Equally important is how good and solid the team is, says Ibaraki, citing grit, talent, hard work, perseverance, optimism and continuing drive as key elements for tech startup success.

Vera Futorjanski, Speaker, Advisor, Digital Platforms and Ecosystems Expert, believes that tech startups are the creative force that will be much needed to build whatever this new post-pandemic normality will look like.

Startups, says Futorjanski, "are agile and fast. We need this innovation going forward ... in all sectors," she says.

Futorjanski is sure that working from home is here to stay, and says that "it will be a tough time for startups, as there might not be as much cash available."

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The silver lining is that you can find talent easier — and talent is an important core part of building an ecosystem.

”

Vera Futorjanski

Speaker, Advisor,
Digital Platforms and
Ecosystems Expert

“

The real value is actually in innovation.

”

Neil Sahota

Worldwide Business
Development Leader
at IBM Watson

“

Big data has been a tremendous help to public health.

”

Zhi Zhen Qin

Senior Technical Officer at
the United Nations Office
for Project Services

On the other hand, she is confident that it is a great time to build businesses, and that downturns are a good time to start companies.

“The silver lining is that you can find talent easier — and talent is an important core part of building an ecosystem,” she told the audience.

Futorjanski believes that governments will realize how important those ecosystems and tech startups are.

“I’m optimistic: I think we will see more support [for startups, from governments] going forward,” she says. “As Charles Darwin said: ‘Those who survive are the ones most adaptable to change.’

This is the core trait of a startup in this time of uncertainty.”

AI and innovation

Neil Sahota, Worldwide Business Development Leader at IBM Watson and author of the book “AI Revolution,” shared his thoughts on AI and innovation.

“AI is going to be a revolutionary force, because it is going to feed the Fourth Industrial Revolution,” he says.

It is not about automation, says Sahota, explaining that automation is all about improving something that you already have. “The real value is actually in innovation,” he says.

“Think about how much is going to change in the next 10 years — in our personal and professional lives,” says Sahota. “We have already seen amazing changes. If we were to jump forward to 2030 and look back, we would be amazed to see how far we have actually come in a short time.”

AI, Big Data and digital health solutions

Zhi Zhen Qin, Senior Technical Officer at the United Nations Office for Project Services, spoke about how traditional public health control methods have limitations when it comes to tackling COVID-19. The potential of digital technology, says Qin, “can have a huge benefit in augmenting traditional public health strategies.”

Quin highlights the usefulness of real-time data tracking. “We see countries adapting their national strategy with data that they are updating every day,” she says.

The power of AI has a role to play in predicting the prognosis of COVID-19 and to detect other infectious diseases – not to mention, chest X-rays and CT scans from hospitals around the world, said Qin.

“Big data has been a tremendous help to public health – there is a lot of big data analysis,” says Qin, adding that without big data it is not possible to model disease activity, predict potential growth, perform strategic analyses, or measure population impact.

Qin is sure that the healthcare industry will see big changes in the future, not just for COVID-19, but also for other diseases and health care in general. The healthcare industry, she says, “has been compelled to adopt digital technology.”

Key challenges to scaling up

Sasha Cahill, Advisor at IBM Cloud Hyper Protect Accelerator highlights the most important challenges that tech startups need to overcome to actually scale up.

Cahill agrees with other mentors that the technology has to be needed – and the team has to be the right one – for a tech startup to succeed.

Understandably, during this crisis, many new tech startups are in the healthcare sector.

Cahill also shared insights specific to technology for healthcare.

“In the United States, physician time is limited to 10–15 mins per patient. If the technology is too complex to use, then both physician and patient will be frustrated,” says Cahill. “How can we as entrepreneurs create new delivery models which can be monetized?”

Cahill advises budding health care startups to think carefully about the patient experience.

“Patients are concerned,” she says, “and they will likely want care in a place where they are most comfortable – and that is going to be their home setting.”

“I want to challenge entrepreneurs to think about those impacts, and how we can think about models that are scalable,” said Cahill.

Pitch your startup!

The Innovation Factory Live Pitching Sessions will continue to showcase a diverse set of emerging entrepreneurs with promising AI ventures to tackle our world’s greatest challenges, and will include discussions with featured mentors on topics related to social impact.

Do you have an innovative idea or a tech startup using AI to help achieve the SDGs?

If so, then why not sign up for a chance to pitch in the ITU AI for Good Innovation Factory? Applications are open until 30 June. [Apply here.](#) ■



Africa's AI community set to light up the AI for Good Global Summit

By Alexander Tsado and Nick Bradshaw

Alexander Tsado, Advisor for [Alliance4AI](#) and Nick Bradshaw, Co-Founder of [AI Expo Africa](#)

■ It is becoming clearer to the world that we can only achieve the United Nations Sustainable Development Goals (SDGs) by 2030 if the innovative voices of those in Africa, who are most affected by the challenges, are involved.

This is a clarion call for the rise of [Africa's innovative voice for the fourth industrial revolution](#).

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For Africa, AI represents access, efficiency and a potential antidote to unemployment and underdevelopment.

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Alexander Tsado/
Nick Bradshaw

Advisor for Alliance4AI/
Co-Founder of AI Expo Africa

Africa and AI

Africa needs to adopt artificial intelligence (AI) now for two key reasons.

Firstly, by 2030, it'll be home to 46 per cent of the world's youth. The continent's rapid population growth means we have to think critically about the future of work.

Secondly, its annual infrastructure spend gap is USD 100 billion. It can benefit immensely from lowering these costs with transformational technologies like AI.

For Africa, AI represents access, efficiency and a potential antidote to unemployment and underdevelopment.

To maximize the effectiveness of limited resources, every organization and government seeking to meet its population's needs should consider the power of AI to render their efforts more likely to succeed.

For example, governments can distribute the limited fertilizers they purchase to the exact farmers that need them or distribute medical drugs to the right patient populations. Companies with small budgets can adequately market to the right customers, sell more, grow their business to finally be able to create jobs for Africans.

In addition, Africa is perhaps the continent with the greatest diversity of data and use cases to feed the design of AI solutions that can be applied in most parts of the world.

AI for claims and fraud detection in Africa

Curacel's AI platform enables insurers track fraud and automate claims seamlessly.



Alliance4ai, AI Media group, AI for Development and Data Science Nigeria are some of the key private organizations pooling together resources to galvanize interest and activate African luminaries solving problems with the technology.

So far, these organizations reached over 25 000 Africans in 2019.

AI for Good Global Summit 2020

Alliance4ai and the AI Media Group are partnering to showcase at the summit globally relevant solutions built in Africa by Africa's top innovators. The top highlights include:

- Keynote addresses speaking to the importance of Africa's Innovative voice that seek to drive inclusion in AI.
- Talks on data center and supercomputer projects being developed in Africa to power world-class innovation.
- Learnings and insights from top [AI startups](#) and [AI training communities](#) in Africa.
- Demonstrations from top researchers addressing critical issues such as fight against Malaria, preserving African languages and culture and creating a template of innovation and collaboration for other low-resource languages to be represented.

WeFly Agri for monitoring plantations

WeFly Agri is an Ivorian Start Up that enables farmers to view and remotely monitor their plantation activities on site.



For us, the future couldn't be brighter.

At the AI for Good Global Summit we will together share our solutions, form partnerships and collaborate as we collectively strive to achieve the 2030 sustainable development goals.

A successful and empowered Africa is one that is an exporter of knowledge and solutions to the world, and we will all be better for it. ■



How can we solve the problems of gender bias in AI? Experts weigh in.

By ITU News

■ Artificial intelligence (AI) has a bias problem.

Actually, AI has many well-documented bias problems. Chief among these, arguably, is gender bias.

From the creation of data sets, to the way the data is collected and used, to the building of AI solutions – women are underrepresented at every stage. This means that AI solutions will not serve the needs of half the world.

If AI is to help accelerate progress on humanity's greatest challenges, we will need to work together to solve AI's many gender bias problems.

But how?

What equitable policies need to be made around AI? Why is diversity so important for data collection? What does algorithmic gender bias look like? How can AI show us COVID-19's impact on roles in the workplace?

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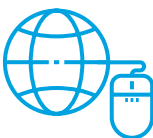
The problem with lack of diversity is that you have blind sides.

”

Ida Tin

CEO and Co-Founder of Clue

Note: Due to the global COVID-19 pandemic, this year's AI for Good Global Summit is all online.



A group of experts gathered on 5 May 2020 at the opening “Breakthrough” session of the annual [AI for Good Global Summit](#) to tackle these questions and more.

Including women at every stage

A large part of the problem is that AI solutions are not being made with women in mind, agreed the panel during the webinar.

“When you think about making something that is truly valuable for people, you have to think about how it’s helpful for every individual,” said Ida Tin, CEO and Co-Founder of Clue, a customized female health period-tracking app with 12 million active users worldwide.

“The problem with lack of diversity is that you have blind sides,” said Ms Tin. “There is a profound blindness in the world that ... is embedded in culture.”

Men often want to understand the issues women face, she said, but how would they know what those are? How would they even think to ask?

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Why would the people you’re building solutions for not be involved in the process?

”

Kishau Rogers
CEO of Time Study

“A huge part of our need space was missed, because those who built products weren’t women” said Ms Tin. “We desperately need diverse teams asking these questions. It’s fundamental. If not, you end up building a world that’s not for everybody.”

The panelists agreed that the stakes are high with AI and that the mistakes of the past must not be repeated.

“Why would the people you’re building solutions for not be involved in the process?” asked Kishau Rogers, CEO of Time Study, a startup offering solutions for using machine learning, advanced natural language processing, and data science to automatically tell a story of how enterprise employees spend their time.

“We are well beyond the time where we have to include the people that we are building the solutions for,” she said.

How does gender inequality in AI begin?

“Everything begins with data sets,” said Kaitlin Kraft-Buchman, Founder and CEO of Women@TheTable. “Data sets have left out women.”

Then, algorithms get skewed and machine learning exacerbates these problems, she added, providing many examples of bias against women in data, algorithms and machine learning – from banking to the job market, and beyond.

“Data tells a story. It’s more than just fields and values,” said Ms Rogers. “My first step is to understand the data – how did it get to this place?”

We need to look at open, collaborative data sets and we need to reevaluate what’s in the original data, said Ms Kraft-Buchman. “That’s important for policy makers,” she added.

Bringing ethics to the discussion

Panelists agreed on the importance of ethics in this discussion.

"If you're going to release a new system into the world, you need to think very hard about your social responsibility," said Andy Coravos, CEO/Founder of Elektra Labs.

Kraft-Buchman mentioned that there should be a Hippocratic Oath for AI, similar to the one used in the medical profession to promise to work for the benefit of people.

"The challenge with Hippocratic Oaths is that people don't remember them," responded Ms. Coravos. "What's better are checklists," she said, giving examples of professions, such as pilots, where checklists must be followed in order to operate.

Ethics should be core and fundamental to technical classes for those learning how to create tomorrow's AI solutions, offered Rogers.

"We need a really deep conversation about ethics and about what world we actually want to create," said Tin.

What can be done on the policy side?

The public sector should consider setting aside funding for women-owned tech businesses with women-run teams of developers, said Kraft-Buchman.

"It's not about creating a bunch of female Zuckerbergs," she said, adding that women need to be working throughout the ranks of tech companies building the latest AI solutions. "It's not only about making more unicorns or owning the company. We need to go broad and wide."

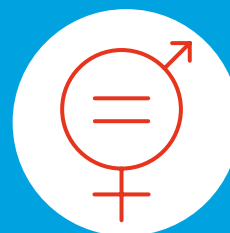
"Policy makers need to have courage – and be encouraged – to ask questions about how the technology is made," she said.

She also called for "a few less pizza-delivery apps" – and a few more solutions that are using AI for social good.

There are so many big problems, but we are "somehow lacking the imagination to use tech to solve these problems," she said. "Let's use the tech to correct these."

In the end, it's not a technical problem, it's a human problem, agreed panelists.

The Future of Us, AI + Gender



This breakthrough session addresses current gender issues in AI, including but not limited to algorithmic bias and data inclusivity. The goal of this session is to identify AI solutions that empower underrepresented communities and enable an equitable future for humanity.

"What I'd like to see is a broader vision for who makes AI," said Rogers. "You have to include people every step of the way. We have to put the human in the centre of this entire process. We don't have an algorithm crisis we have a crisis of caring. We have to care more about the people we're creating solutions for." ■



COVID-19: How can AI help fight hunger and food insecurity?

By ITU News

■ For decades, the number of hungry people was declining – this isn't true anymore.

The coronavirus pandemic is having an unprecedented impact on food systems. But even before the COVID-19 pandemic began to affect food systems and agricultural livelihoods, 135 million people were already facing acute food insecurity.

The World Food Programme's [2020 Global Report on Food Crises](#) describes the scale of acute hunger in the world. It provides an analysis of the drivers that are contributing to food crises across the globe, and examines how the COVID-19 pandemic might contribute to their perpetuation or deterioration.

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This will interact with a reverse shift in globalization to more decentralized food systems.

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Lorin Fries
FutureTable

Note: This year's AI for Good Global Summit is being held online throughout the year. Don't miss the next [online discussion](#).



Experts came together in a webinar “Breakthrough” session of the annual [AI for Good Global Summit](#), on 7 May, to discuss food insecurity and possible solutions. Moderated by Caroline Kolta, Senior Associate of XPrize, the panel explored how AI and innovative technology can help shape the food landscape of tomorrow. Here’s what they had to say.

Systemic change – a window of opportunity

Lorin Fries, Founder and Lead Partner, FutureTable, highlighted some of the hardest hit actors by COVID-19 and suggested ways that the food crisis might bring not only change, but a window of opportunity.

Those from import-dependent nations and regions, explained Fries, would be some of the hardest hit – Africa for example – and small-island developing states. Africa is already set to import 110 billion USD of food by 2025. “This will interact with a reverse shift in globalization to more decentralized food systems,” said Fries.

A [case study](#) on a decentralized food system in Mozambique was published by the United Nations Food and Agriculture

The Future of Food, AI + Food



This breakthrough session tackled issues around food insecurity, including but not limited to the impact of COVID-19 on food systems. The goal of this session was to identify how AI can help us reach zero hunger and shape the food landscape of tomorrow.

Organization. It shows what might be required for the successful implementation of decentralized food systems. Information and communication technologies (ICTs) could [be part of that](#).

Fries points out that while we are recognizing the essential role of farm, factory and food workers, at the same time we are realizing that any human interaction with the food value chain, at least in the context of a virus, presents some risk. “So you see a lot of activity in the investment space for instance around

[robotics and automation](#),” said Fries, also indicating that “the question of the future of work for workers in this turbo-charged digital age is an open one.”

Entrepreneurs and small and medium-size enterprises (SMEs) are experiencing high impact from the current food crisis. SMEs in Africa, are considered to be the backbone of the economy, providing food services to their communities. “[How we can support the SMEs is then an imperative question at this moment?](#)” said Fries.

AI innovative solutions

AI is already [helping in agriculture](#); for example, picking vegetables, controlling pest infestations, soil and crop health monitoring and predictive analysis.

Bernard Kowatsch, Head of Innovation Accelerator, United Nations World Food Programme (WFP), the world’s leading agency fighting hunger, outlined some of WFP’s innovative solutions to food insecurity.

Within days of the pandemic being declared, [HungerMap LIVE](#) was tracking coronavirus outbreaks in most low and lower-middle income countries.

WFP's Hunger Monitoring unit is now collecting, analysing and visualizing real-time data to scale up remote food security monitoring to 40 countries. The map enables a quicker response to emergencies. "You can be faster in getting the right food – at the right time. And that can have a huge impact", says Kowatsch.

By making it easy to analyse connected data streams, WFP is [helping the humanitarian community](#) make fast, evidence-based decisions.

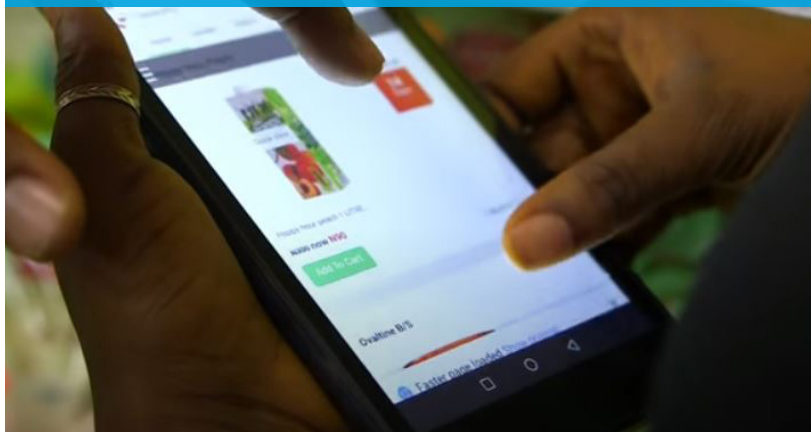
Another WFP innovation is the [PLUS School Menu Optimizer](#) tool. The tool is an online software that, through an advanced mathematical algorithm, calculates the most nutritious and cost-effective school feeding menus to ensure dietary diversity based on local food where possible.

The WFP [e-shop Somalia](#) is enabling citizens to shop comfortably from any authorized World Food Programme retailer in the country.

Kowatsch also cited [Hello Tractor](#), a startup which claims to offer technology for smarter, better maintained, and more profitable tractors now powered by artificial intelligence for better and faster decision-making.

Reducing food waste

An app in Nigeria is helping to reduce waste in the food system.



Fries sees producing food elsewhere such as [indoor farming](#) accelerating forward in future.

"Supply chain logistics and the efficiencies that can be gained through digitization and some of the AI apps will be absolutely key," says Fries. [Improving traceability in food value chains](#) is one key requirement.

[E-commerce](#) is already shaping how people buy food, from Alibaba and Amazon down to marketplaces, but Fries is convinced that there is a set of innovative market spaces such as Nigeria, that are doing a better job of linking supply and demand, and balancing demand and supply.

An app in Nigeria is helping to reduce waste in the food system ([see video](#)).

From 'linear' to 'circular' food system

Merijn Dols, Global Director of Open Innovation and Circular Economy of Food, Danone anticipates some opportunity during this food crisis, to re-design and innovate.

"This unprecedented shock to the system is making the downsides of our linear food system that we have created very visible, and even undeniable," said Dols. "And this might be the start of an acceleration in the system shift."

Dols explained that our current linear food system is built on a view of the world of a giant machine driving growth, where one of the key levers for this growth, and the driver of the system, is efficiency.

Hence, Dols strongly advocates for a circular food system – one that has positive economic and social impact by design. A system which, he explains, aims at dynamic balance rather than infinite growth. “A system that is not driven by efficiency, but it is driven by effectiveness. Which is about doing the right thing,” says Dols.

According to Dols, building a circular system of food would need AI. With highly local farming, for example, farmers will need data that is relevant to their crops, and to identify the crops that work best in a specific environment. AI can be harnessed for connecting producers and consumers.

“I see AI helping producers and consumers connect real-time,” says Dols, adding that “real-time access to holistic, understandable data will help everyone.”

“

AI can have a positive impact on a different, regenerative future.

”

Merijn Dols

Danone

“AI can have a positive impact on a different, regenerative future,” enthuses Dols.

AI in developing countries – benefiting those who need it most

How does food investment in AI in developing countries look like?

Bernard Kowatsch is of the opinion that venture capital money is generally underrepresented in food compared to other sectors. Even there, he says a lot of the investment goes to food delivery apps, while there is potential for much to be done in developing countries.

“This is where particularly local talent could be supportive – in some of the hot spots in Africa and the Middle East, and some other areas, across Asia and Latin America,” said Kowatsch. “There is talent, and interesting start-ups, and definitely drive.” “Those start-ups have better knowledge of the local innovation ecosystem,” he says.

Referring to the AI hotspots; Silicon Valley, some parts of Europe, China and other places with lots of AI researchers, Kowatsch questioned how that technology can be provided and made more accessible to other parts of the world. Could companies provide pro bono resources, or focus on building up local innovation hubs in Africa? “Some of the tech companies are doing that,” he says.

Kowatsch suggested that there is a need to inspire people – serial entrepreneurs who can actually create a business that has a positive impact on the planet – in ending hunger.

“

You can create a start-up and create jobs for yourself and others and still have a positive impact.

”

Bernard Kowatsch
World Food Programme

“This is a huge opportunity... You can create a start-up and create jobs for yourself and others and still have a positive impact.”

“We need to broadcast this more and be open to it,” said Kowatsch.

The costs of AI

For Lorin Fries, collaboration is critical. “There is a world of opportunity at the intersection of technology like AI and issues like hunger or social impact more broadly,” she says, adding that “we need a multi-stakeholder approach. Business to come alongside governments – alongside civil society – alongside a range of players involved.”

She warned against the costs of using AI, such as for example, the potential perpetuation of bias, and the need for clear re-designing.

“How do we actually put ethics and equity at the centre of our AI systems? asked Fries, “including and especially as applied to our food systems?”

She also cautioned how “data is the new gold, and much of it is owned, and will be owned by large players – big businesses.”

She encouraged reflection on how the data will be accessed by the people who use it; the farmers, for example, and consumers.

“We need more open source systems, more protections, more savvy citizens and more tech knowledgeable consumers,” said Fries. “It is complicated, and collaboration is very difficult. Actors speak different languages – and have different cultures.”

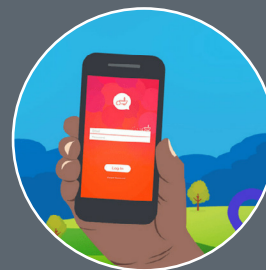
The panel agreed, nevertheless, that having people at the centre, to help transform AI for social good will be key in helping to fight hunger and food insecurity, and reshaping the food systems of tomorrow. ■

Hello Tractor

Connecting you to your tractor and your tractor to the world

Hello Tractor offers technology for smarter, better maintained, and more profitable tractors now powered by artificial intelligence for better and faster decision making.

How does it work?



Farmer requests tractor service via app or booking agents



Tractor owner pairs request with available tractor



Farmer is served and tractor is monitored

Source: [Hello Tractor Site](#)



How AI can help save the planet

By ITU News

■ Fish have returned to the canals of Venice. Villagers across northern India can see the Himalayas over 200 Km away. Cities around the world are recording the cleanest air on record.

As the world recently celebrated the 50th anniversary of Earth Day, COVID-19 lockdowns have shown us a glimpse of what a world without pollution could look like. But staying home is not a long-term solution to climate action – and as we slowly return to normal, so too will pollution levels.

This is where artificial intelligence (AI) can help.

The AI for Good Global Summit 2020 [breakthrough session on AI and the environment](#) (held on 8 May), looked at how AI solutions can shed light on environmentally destructive practices as well as protect our planet. Panellists presented compelling and interesting applications of AI and machine learning (ML) to not just observe Earth systems, but actually put insight into practical action.

“

We're finally at the point where we can use remote sensing and AI to make climate change more concrete.

”

Sasha Luccioni

Quebec Artificial Intelligence Institute

Fixing something invisible

It might not be difficult to imagine what London looks like under 10 metres of water given the proclivities of British weather, but what about Montreal or Tokyo?

"I find that the main obstacle for humanity to act on climate change is the problem we have of actually imagining it and visualizing climate change, and I think that AI can help with that," said Sasha Luccioni, Director of Scientific Projects and Postdoctoral Researcher at Mila – [Quebec Artificial Intelligence Institute](#).

She is developing a visualization tool using existing open-source climate models to make the potential consequences of climate change visible, accessible and actionable, to help people to understand both what is and what might happen in the future.

"Our idea is to help people really realize what this means with a 1.5-degree climate increase," she said.

The Future of Earth, AI + The Environment



This breakthrough session explored how AI solutions can shed light on environmentally destructive practices as well as protect our world. The goal of the session was to take urgent action in combatting climate change, to identify solutions to sustainably use our planet's resources, and to re-imagine the future of the Earth with AI.

Drawing parallels with the impact of images of the hole in the Ozone layer which played a big part of the signing of the Montreal Protocol, "we're finally at the point where we can use remote sensing and AI to make climate change more concrete," she said.

Intelligent and actionable information

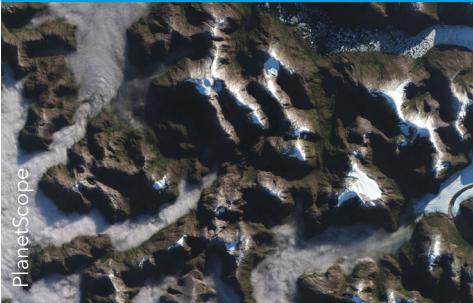
For Andrew Zolli, Vice President of Global Impact and Planet Fellow at [Planet Labs](#), visualization is just one piece of the puzzle; making data and intelligence into actionable insights for policymakers and local leaders is largely a question of accessibility.

"We spend a lot of time talking about visualization because we're trying to prompt people to urgency. But the reality is, for utility, what you really want to do is get the answer down to like a one, or a zero. Is there a thing there? Is that deforestation or not?" he said.

Using a constellation of satellites, Planet Labs takes images of the entire surface of the Earth every day at roughly three metres per pixel. A second group of satellites can then zoom in selectively anywhere on Earth, and image multiple times a day at 70 to 80 centimetres per pixel. "We use the daily monitoring of the Earth to understand what gross level changes are occurring," he said.

Planet data mapping

Planet provides custom monitoring, tasking, and basemaps for mapping and geographic information system (GIS) applications.



PlanetScope

Morning fog

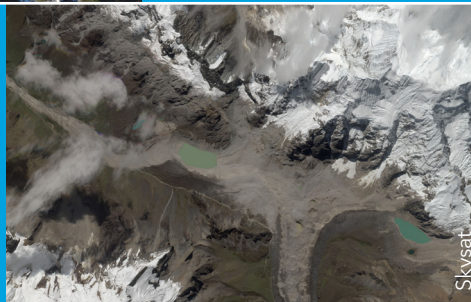
Parque Nacional Bernardo O'Higgins, Chile

Fog flowed through the steep valleys and fjords of southern Chile on March 28, 2020.

Rock avalanche on Salkantay

Vilcabamba Range, Peru

On February 23, 2020, a massive flood of mud and rocks flowed down the Salkantay River in Peru.



SkySat



SkySat

Icefields on Kilimanjaro

Mount Kilimanjaro, Tanzania

This SkySat image shows the remaining ice fields on the summit of Africa's tallest peak, Mount Kilimanjaro.

Source: Planet Gallery

The data is being used to monitor urban growth and predict where populations are exposed to risks, such as flooding; build monitoring systems for biodiversity conservation and an ecological

protection, that for example, show us the earliest signs of coral bleaching to help de-intensify human impacts, and track the carbon emissions of coal fired power plants around the world.

"We can't fix what we can't see," Zolli said.

It is also being used to monitor and predict agricultural output to prevent potential famine.

"Right now, when, especially in East Africa, we're seeing the intersection of COVID-19 plus the locust infestation creating real potential risk and vulnerability. These kinds of tools will be used in a very actionable way – in fact, they already are – to help determine how to keep people safe and make sure that they get fed," said Zolli.

Direct impact on the environment

One key environmental question that panellists addressed was about the technology itself: Isn't the immense computing power needed for deep learning counterproductive for the environment?

While there are bigger models, especially in natural language processing, that can produce a lot of CO₂, "the day-to-day, more small-scale AI efforts definitely don't produce that much," said Luccioni.

“

One of the things to see is at an industrial scale — lowering the cost, improving the energy efficiency of AI.

”

Andrew Zolli

Global Impact and Planet Fellow at Planet Labs

She is creating a downloadable tool that tracks and calculates machine learning energy consumption and translates this into CO₂ equivalents to raise awareness.

Zolli pointed to larger efforts to improve the energy efficiency of data centres and compute centres using AI – highlighting that Google’s DeepMind successfully reduced their energy consumption for cooling their data centres by **40 per cent**.

“One of the things to see is at an industrial scale – lowering the cost, improving the energy efficiency of AI – because both renewable solar energy and the computing architectures themselves are becoming broadly speaking more energy efficient and more powerful over time,” he said.

An AI-enabled future for the environment

The panellists were optimistic about the future of an AI-enabled environment.

“This is the foundational insight that can be used for new forms of climate risk insurance or new realms of climate risk financing, or even for communities to advocate for their own climate rights and for climate justice,” Zolli said.

Luccioni agreed: “I’ve always seen AI and machine learning as another frontier... for actually developing new solutions that can take us forward to that sustainable future.”

But it is not just a case of having the technology; implementing AI solutions relies on data – something that on-the-ground non-governmental organizations (NGOs) may not have ready access to.

After approaching NGOs in Montreal to help them develop AI-led solutions, she realized that there was a fundamental flaw in her plan: “Most of the answers we got were: ‘what data? Can you give us lessons on how to use Excel, or how to set up a management system for our inventory?’”

As such, Luccioni advocated for close working partnerships between fieldworkers and AI experts in order to create AI-led solutions.

“Maybe five years down the road, we’ll be ready for that, but now, we should start doing tutorials about what data is and how it can help,” she said. ■



What the United Nations is doing to leverage AI for Good

By ITU Secretary-General Houlin Zhao

“

What is clear is that no nation, company or organization can meet these challenges alone.

”

Houlin Zhao

ITU Secretary-General

Very few topics have captured the imagination of the public and promised to transform humanity more than artificial intelligence (AI).

In the publication “[United Nations Activities on Artificial Intelligence](#)”, more than 30 United Nations (UN) agencies and bodies describe how they are increasingly using AI to meet many of the world’s most urgent challenges, from

responding to humanitarian crises to tackling climate change.

Although it is still early days for AI, the agencies highlight the need to improve data literacy skills across their organizations and warn against the capability gap between developed and less-developed countries. They call for responsible innovation and a better understanding of the implications and potential benefits of AI.

This article is a Foreword to the compendium entitled, “[United Nations Activities on Artificial Intelligence](#).”



For AI to be a force for good, it must face complex questions about trust and address challenges ranging from job displacement to autonomous weapons and potential bias in algorithms. What is clear is that no nation, company or organization can meet these challenges alone.

Each year, ITU's [AI for Good Global Summit](#) brings thousands of AI innovators and public and private-sector decision makers from around the world, including UN agencies, who come together to identify practical applications

of AI to accelerate progress towards meeting the United Nations Sustainable Development Goals. This year's event is being held online, throughout the year.

The UN system has an important role to play in balancing technological progress with social progress and ITU, as the UN specialized agency for ICTs, is at the forefront of this critical endeavour.

I commend this publication to all those committed to ensuring that artificial intelligence benefits all of humanity. ■

United Nations Activities on Artificial Intelligence (AI)

United Nations Activities on Artificial Intelligence (AI)

2019



A joint-effort between ITU and over 35 other UN agencies and bodies, and all partners of 2019's AI for Good Global Summit, this report provides information about the diverse and innovative activities related to artificial intelligence (AI) across the UN system to meet many of our world's increasingly urgent challenges, from responding to humanitarian crises to tackling climate change.

Read the [report](#).

SUSTAINABLE DEVELOPMENT GOALS





XPRIZE
PANDEMIC
ALLIANCE

JOIN A DATA- POWERED ALLIANCE TO STOP COVID-19

Facing COVID-19 is one of humanity's greatest challenges ever, bigger than any one government or organization can overcome without uncommon thinking and partnerships.

In response to this and future health crisis, XPRIZE, in collaboration with Anthem, launched the XPRIZE Pandemic Alliance, a global coalition of partners, including expert innovators, clinicians, researchers, data scientists, and health institutions. This alliance is moving toward predicting, diagnosing, and treating COVID-19, and preventing future pandemics by working together, sharing ideas, identifying areas of need, and offering resources. It will create a series of incentivized data challenges to help predict and prevent the next pandemic.

Alliance members may also participate in the XPRIZE Data Collaborative, a unique platform for researchers and innovators to exchange ideas and share and experiment with ethically sourced and validated data from a broad spectrum of fields in their search for solutions.

As people and businesses all over the world are doing what they can to stop the spread of COVID-19, fight the disease, heal the afflicted, safeguard those on the front lines, and mitigate the economic fallout of this crisis, we can accelerate these critical response efforts and identify breakthrough solutions.

Each day the rate of infection reaches new heights, the economy contracts further, and the number of fatalities, people near and dear to us among them, continues to grow. Now is the time to diminish the fear, to ignite unprecedented innovation, and stimulate exponential impact to bring humanity a healthy more resilient future.



Here are several ways to help:

DATA

Provide access to critical data to address the ongoing challenges of the pandemic.

EXPERTISE

Connect domain experts, scientists, clinicians, data scientists, and others to data sets; inform the challenge design.

TECHNOLOGY

Share code, algorithms, APIs, unique models, cloud compute, and other resources.

AMPLIFICATION

Promote the XPRIZE Pandemic Alliance to communities of innovators, medical researchers, and experts.

FUNDING

Sponsor a data challenge to uncover insights and unlock solutions.

Join the XPRIZE Pandemic Alliance
and help make a pandemic-free future.

covid19.xprize.org





Reducing the global healthcare shortfall using AI

By ITU News

■ Dr Nick Sireau finally found a way to save his children from decades of disabling pain.

Dr Sireau's two sons were born with [Alkaptonuria](#), also known as Black Bone Disease, an ultra-rare genetic mutation which affects just 200 people worldwide. Left untreated, they would have been expected to develop severe early-onset osteoarthritis and have a significantly heightened risk of brittle bones and heart disease.

But there was no medical treatment available on the market

— so he went to find one. After a slow and expensive process, he found it.

But Dr Sireau's story isn't unique. There are 7000 known rare diseases which affect some 400 million people worldwide. However, 95 per cent of these diseases do not have an approved treatment, and not everyone has the time and resources available to find a treatment themselves.

This is where artificial intelligence (AI) can help.

The boom of digital health tech

It is predicted that the healthcare landscape will completely [shift in the next 10 years](#), driven by AI and machine learning (AI/ML). By aggregating and analysing data from connected-home devices and medical records, healthcare systems will be able to deliver proactive and predictive medical care.

"Health care has gotten too complex for humans to do a good job; there are way too many diseases, way too many treatments – certainly if you factor in anything about genetics, or proteomics, or biomedics, it's just way too much data for humans to be able to comprehend," said Professor Tom Davenport, President's Distinguished Professor of Information Technology and Management at Babson College, Wellesley, USA, told ITU in an interview.

"AI, particularly machine learning, can deal with all of that data in a relatively straightforward form

“

AI, particularly machine learning, can deal with all of that data in a relatively straightforward form and make predictions about what diseases people are likely to have and what treatments are likely to be most effective.

”

Professor Tom Davenport
Babson College, Wellesley, USA

and make predictions about what diseases people are likely to have and what treatments are likely to be most effective," he said.

In 2018, investments in health tech surpassed USD 8.1 billion, with AI and machine learning driving over a quarter of the funds. Companies are testing a wide range of AI healthcare solutions, from drug discovery to diagnostics – and the results are promising.

Drug discovery for rare diseases

Dr Sireau's story was the inspiration behind Healx, a healthcare startup that uses AI to predict and find treatments for rare diseases at scale using existing and approved medical treatments.

To analyse a disease, Healx runs algorithms that look through the available data, such as clinical trial information, the models available to test the treatments, the number and quality of patient groups and how proactive they are. On the medication matching side, it's the same thing; algorithms search and predict which existing medication is best suited to stop or reverse the disease.

“

We can find a disease where there is no treatment, crunch the data and make predictions... We've had a 100 per cent success rate so far, which we didn't expect.

”

Tim Guilleams
Healx

12 years vs. 24 months

Using this method, the company aims to discover new treatments for rare diseases and move them towards clinical trials within 24 months. This is a lot quicker than the traditional model of discovery and clinical development of new medicines which takes an average of 12 years and costs an estimated USD 2.6 billion. Moreover, only 12 per cent of new medicines brought through medical trial are approved.

"We can find a disease where there is no treatment, crunch the data and make predictions," Guilleams said. "We've had a 100 per cent success rate so far, which we didn't expect."

Working with medication that has already been approved reduces regulatory hurdles and speeds up the time to trial, making it possible for a treatment to happen in a couple of years, as opposed to a couple of decades.

"For Fragile X Syndrome, it took us 18 months to make the predictions, test them, get them ready for phase 2a clinical trial at a fraction of the cost," Guillems said.

The start-up aims to help get [100 rare disease treatments towards clinical trial by 2025](#).

They are currently focusing on two disease clusters, rare neurological diseases and rare cancers, and plan to expand to a further two diseases within the next two years.

At-home diagnostics

According to the World Health Organization, there will be a [global shortfall of 18 million health workers](#) by 2030. AI can help reduce this challenge by helping doctors diagnose and assess patients with degenerative diseases such as cancer and Parkinson's Disease quickly and efficiently.

Dan Vahdat, founder and CEO of Huma, speaks to Proactive London's Andrew Scott following its rebranding from Medopad.



For instance, [Medopad](#), an AI startup (since rebranded to Huma), has partnered with Chinese Internet company, Tencent, to develop an AI-powered "at home" monitoring solution to assess the motor function of a Parkinson's patient in a real-world setting.

"AI in health care is especially important as our healthcare system can't cope with the increase in demand. We must move towards a 'prevent not treat' model with predictive medicine at its core," a spokesperson for Medopad said in an interview.

Parkinson's affects [around 10 million people worldwide](#). It has a wide range of symptoms and is therefore [difficult to diagnose](#) and monitor as it progresses.

Medopad's "at home" solution monitors patients using wearable devices and a smartphone app. Machine learning is then used to spot patterns in the data.

"AI will take the burden off clinicians and overstretched medical systems, while improving the lives of patients with Parkinson's," a Medopad spokesperson said.

“As we begin to accumulate larger pools of data, the possibilities to better understand disease progression and risk become endless. Mobile technologies are so ubiquitous that each individual is becoming a data centre for their own health.”

For patients, the technology means that tests can be done at home with a carer or family member. For doctors, it can reduce the time necessary to evaluate the patient, thereby improving efficiency and reducing costs.

ITU and WHO “AI for Health” solutions

ITU and WHO are developing systems for the performance benchmarking of “AI for Health” solutions. The initiative is open to all. Learn more [here](#).



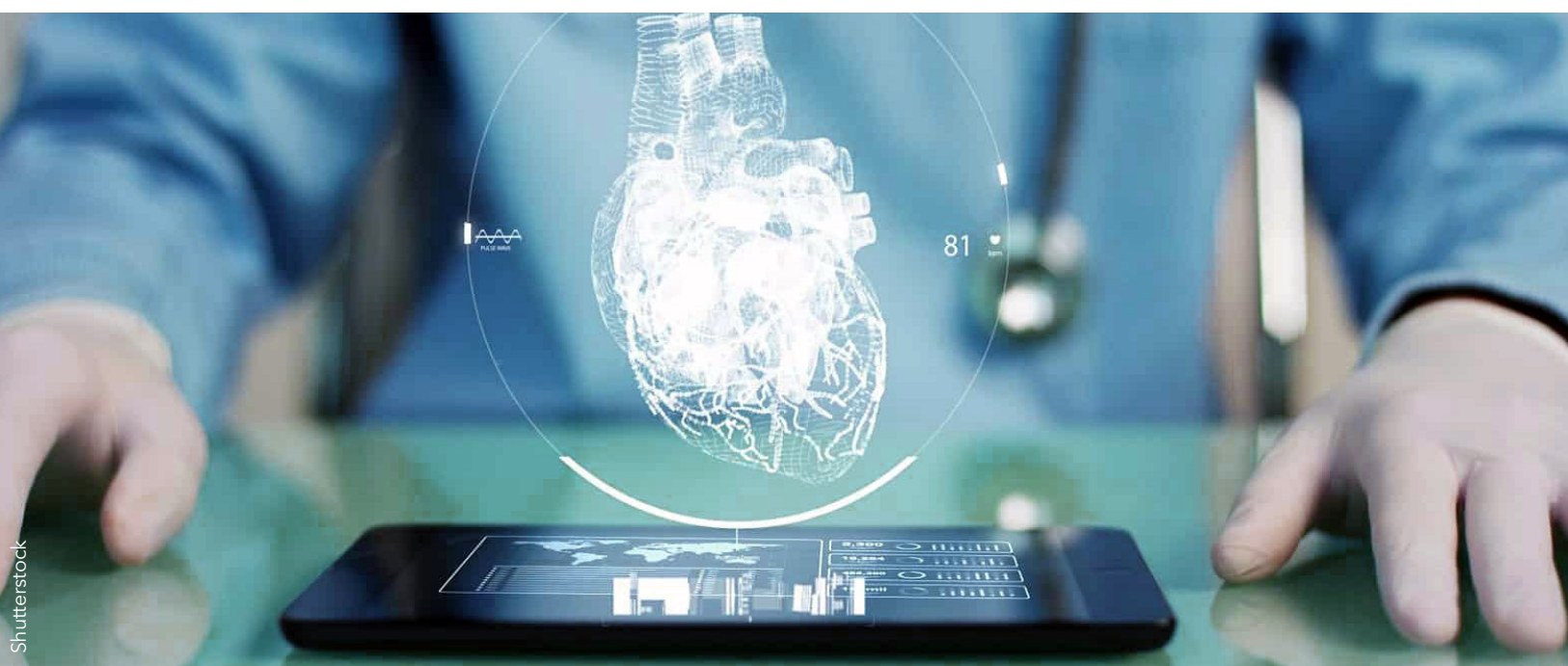
ITU's role

For doctors and healthcare professionals, one of the next big challenges will be to adopt and integrate these new systems into daily clinical practice.

ITU's [Focus Group on AI for Health](#), a partnership with the World Health Organization (WHO), is empowering healthcare workers with AI solutions to achieve universal healthcare coverage.

One of the group's key goals is to establish a standardized assessment framework to evaluate AI-based methods for health, diagnosis, triage or treatment decisions.

ITU's [AI for Good Summit 2020](#) will look at how AI can help to achieve the United Nations Sustainable Development Goals. ■



The opportunities and challenges of introducing AI to improve health care

By Chaesub Lee

Director of the [ITU Telecommunication Standardization Bureau](#)

■ Participants at [Kaleidoscope 2019](#) discussed the contribution of information and communication technologies (ICTs) to health care, but this discussion is emblematic of a larger trend.

We are living through a time of accelerating convergence.

Technologies are converging. Industries are converging. Our world has become highly interconnected.

ITU standardization work is now supporting digital transformation in areas ranging from energy and transportation to financial services; agriculture; smart cities; and, of course, health care.

“

In AI for health, ITU and WHO have launched our most ambitious initiative yet.

”

Chaesub Lee

Director of the ITU
Standardization Bureau

It is in this context that the ITU standardization platform, for many years central to building trust within the ICT sector, is now helping the ICT sector build trust with its many new partners – from automotive to fintech to health care, and many more.

Working in collaboration, thinking in a multidisciplinary way, we can create very meaningful improvements in the quality of life enjoyed by billions of people worldwide.

Kaleidoscope 2019 focused on ICT for health

That is why ITU's academic conference is named "Kaleidoscope".

It views ICT innovation through a kaleidoscope to see its many dimensions. In the recent 2019 conference, we focused on ICT for health, but we approached our discussions from a wide variety of perspectives.

ITU standardization work for digital health receives essential support from our longstanding partnership with the World Health Organization (WHO).

But in AI for health, ITU and WHO have launched our most ambitious initiative yet.

AI for health

Our [Focus Group on AI for Health](#) aims to establish the foundations for AI to improve health care on a global scale. The Focus Group is open to all.

We are working towards the standardization of a framework and associated processes for the benchmarking of "AI for Health" solutions.

We aim to create a facility open to all innovators – an always-available online system for performance benchmarking.

We see potential to deliver metrics of great value to regulators.

National health regulators are accustomed to testing diagnostic tools such as microscopes. However, these regulators are entering unfamiliar territory with the testing of methods such as AI models.

Like all software, AI solutions have a very dynamic update and release cycle. Traditional certification processes will not scale. As a result, AI models are not being certified and not being used.

The benchmarking framework being developed by the Focus Group will support the evolution of these certification processes.

The group is studying AI use cases for a range of health topics, including diagnostics chatbots, neuro-degenerative diseases, histology, vision loss, skin lesions, cardiovascular diseases, and psychiatry.

And, of course, all these use cases demand data.

We are bringing different industries together. These industries are governed by different regulations. And we have different priorities and constraints when it comes to data.

It should come as no surprise, then, that many see data governance as an issue of critical importance to the success of AI.

In the AI era, data is the new commodity.

Alongside discussions about data privacy, we need to reflect on what kind of commodity data should be:

- Should it be like drinking water – abundant and free for all?
- Or like gold – relatively abundant but a valuable resource?
- Or like diamonds – where supply is carefully controlled to maximize value?
- Collective interests may prevail for public health, ... but what about neglected and rare diseases?
- And how about, My data versus Your data mindsets?

An international dialogue is needed to define rules of engagement for data, a “Commons” for data, to ensure that all of humanity benefits from AI’s contribution to health care.

This is an area where a collaborative platform offered by ITU and WHO could deliver considerable value.

Data: A driving force for innovation

Data has become a driving force for innovation across all industries and public-sector bodies. And much like a natural resource, we will draw the most value from data if we reach international agreement on how to refine and share it.

Kaleidoscope 2019, hosted by the Georgia Institute of Technology in Atlanta, United States from 4–6 December, with the theme: “ICT for health: Networks, standards and innovation,” made a valuable contribution to this discussion.

AI and health are natural companions. We see huge opportunities for AI to improve health care, but there are still significant challenges to be overcome. My remarks have focused on just two of these challenges: benchmarking and data governance.

“

In health, we frequently hear, ‘Do no harm’. We are introducing AI into a field with no margin for error.

”

Chaesub Lee

Director of the ITU
Standardization Bureau

In health, we frequently hear, “Do no harm”. We are introducing AI into a field with no margin for error.

This will be a true test of AI’s maturity and a true test of AI’s potential to better our lives.

Our experience introducing AI into the healthcare sector is certain to inform AI innovation in many other sectors. ■



Responsibly unlocking the potential of data in health

By Stefan Germann and Ulla Jasper

Stefan Germann, CEO and Ulla Jasper, Policy Officer, [Fondation Botnar](#)

■ We are witnessing a global shift from traditional, reactive health care to proactive health and wellbeing/wellness fuelled by digital solutions.

A recently published article from mHealth shows that **75% of health-care companies** are planning to execute artificial intelligence (AI) strategies in 2020.

“

Young people have the potential to be powerful changemakers, but for this to be realized they need to be included in the discussions about our collective digital future.

”

Stefan Germann/
Ulla Jasper

CEO/Policy Officer,
Fondation Botnar

This presents a great opportunity to continue unleashing the potential of AI and frontier technologies to improve health care.

The uptake of digital solutions is welcome; however, it also raises critical ethical and societal questions that need answering.

As technology becomes more integrated in health services, there is and will continue to be, a huge increase in both the generation and usage of health data.

Fondation Botnar – The future now, for children worldwide



The opportunities to harness the transformative power of big data have never been greater, but we need to urgently come up with equitable and sustainable solutions for health data governance.

Opportunities and challenges

Telemedicine, health chatbots/apps, and smart watches coupled with monitoring of [social media and web data](#) is bringing an [opportunity](#) to leverage data to better understand and generate insights about health.

“Our health data is constantly being recorded, stored, and shared, but the rules of how technology companies use citizens’ [sensitive data](#) are few.”

This, in combination with the [private sector taking an increasingly leading role](#) in designing solutions for digital welfare, creates opportunities as well as challenges.

There is a growing critical dialogue around governance structures for health data, but it is time for the dialogue to be turned into concrete action.

The current situation poses a risk for citizens’ privacy and we need to start developing governance structures that both aid innovation and protect our privacy.

Ownership of health data

Ownership of health data must be tackled before equity can be secured.

[From a human rights perspective](#), ownership of health data can be problematic. There are many questions surrounding visibility and lack of privacy of citizens’ information, especially as the data

We would like to see a different development where companies and government responsibly and transparently use citizens’ data. However, while new power structures over individuals, but also [societies](#) are emerging, there is a general reluctance among most governments to regulate the activities of the big tech companies. This is compounded by resistance from companies in taking systematic responsibility for human rights to be considered; new power structures over individuals are emerging, which has to be well-managed.

“

At Fondation Botnar, we are prioritizing the development and implementation of digital solutions, particularly in AI, that improve the health and wellbeing of young people in low- and middle-income countries.

”

Stefan Germann/
Ulla Jasper

CEO/Policy Officer,
Fondation Botnar

More voice for young people

With ongoing global efforts on data and digital health policy initiatives, such as the [UN Secretary's High-Level Panel on Digital Collaboration](#), the [Financial Times and Lancet Commission 'Governing Health Futures 2030: Growing up in a Digital World'](#), and the [World Health Organization's draft Global Strategy on Digital Health](#), we call on the global health community to give more voice and attention

to young people – many of whom are naturally digital natives – to be part of shaping a fair and equitable future.

[Young people have the potential to be powerful changemakers](#), but for this to be realized they need to be included in the discussions about our collective digital future.

At Fondation Botnar, we are prioritizing the development and implementation of digital solutions, particularly in AI, that improve the health and wellbeing of young people in low- and middle-income countries.

We want to ensure young people are not just involved but have real tangible power and influence in the design of innovative solutions, and in shaping policy and global agendas.

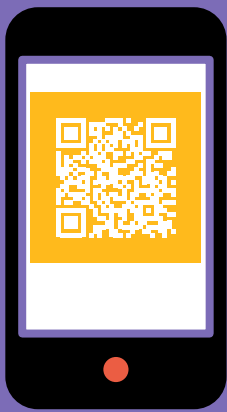
These are some of the challenges and opportunities we are currently facing. Join us at our session at the [AI for Good Global Summit](#), where we will dive deeper into these challenges and discuss opportunities together with young experts and rights specialists from around the world. ■



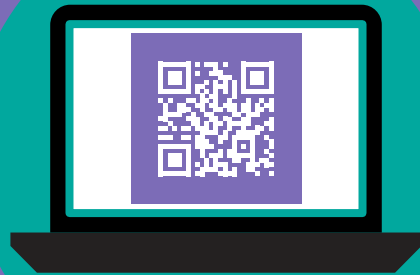
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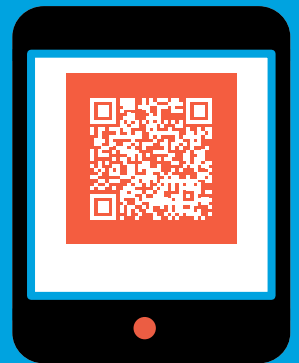
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