Breakthrough Sessions: AI Education: Reaching and Engaging 21st Century Learners

Your Facebook feed looks different. On the side it shows a visual history of your activity and how that results in the current image on your feed. There is a little image of a brain, and if you click on it, it shows you what impact the image will have on your emotions. You don't feel as depressed now when you see your friend's vacation pictures!

A little crystal ball pops up on your teenager's instagram feed when she is about to post a picture... It says, "See how your post will affect your friends tomorrow, and how this post will be used when you are being interviewed for a job in 6 years".

AI is more recognizable, and present in even more corners of our lives. So is a heightened consciousness and societal awareness of how humans and technology co-exist and co-evolve.

This is not the situation today.

The world is changing dramatically as AI becomes integrated into our society and work. It is imperative that we reimagine our approach to education. Education needs to be seen as a lifelong journey that everyone has the opportunity to pursue, and through which everyone can develop the skills needed to thrive tomorrow — developing the agency to make a change in the world, ability to identify problems, generate creative solutions, solve problems and work collaboratively across multi-cultural teams.

Technologies such as AI are powerful tools that can unlock an individual's potential and amplify her sense of agency and purpose. We not only need to learn more about AI, but also need to understand how to use it responsibly, and how we can improve AI technologies to create the world we wish to live in.

The challenge in getting started is that many people are deeply (and secretly) scared of these technologies, and as a result are not willing or curious to learn more.

This widespread fear of AI is fueled by movies and media stories around errant self-driving cars, "robots taking over jobs", and misconceptions around how these technologies actually work. A survey of 1,500 parents commissioned by Iridescent found that ~60% of low-income parents were not interested in learning more about AI and less than 25% of children from low-income families had access to CS/technology programs. Below are some of the concerns expressed by parents from the survey:

"Afraid it will take over and destroy our working world"
"The great drawback here is that it is putting way too much trust in man-made machines. That will lead us into a lot of trouble in the long run."
"I don't see how this would help my children in the long run, when AI takes over jobs and replaces the human race in production and livelihood."
"I do not trust machines or anything thing with no soul or spirit"
"I think it's just making people lazy"
"Not learning first hand the enjoyments of doing yourself"

Read a full description of the AI Education track and labs.

Chair:

Room 2, Level 0, CICG

Speakers:

What is AI? How is Machine Learning different? What is the current state of AI technology? What lies ahead?

- **Fei Fang**, Assistant Professor, Carnegie Mellon University

State of AI Education

- **Valtencir Mendes**, Project Officer, UNESCO's Unit for ICT in Education, UNESCO

Lessons from deploying the AI Family Challenge with 7500 children and parents across 13 countries

- **Tara Chklovski**, Founder and CEO of Iridescent

Lessons from implementing the world's largest robotics program

- **Chris Rake**, Vice President of Programs at FIRST (For Inspiration and Recognition of Science & Technology)

Lessons from the Arduino Movement –

- **Massimo Banzi**, Co-founder at Adruino

A healthy AI diet for families

- **Amy Orben**
- **Daphne Bavelier**
- **Isabela Granic**

How do we measure impact in social science?

- **Adam Russell**, Defense Sciences Office (DSO), DARPA

More speakers to be announced soon

Room 1, Level 1, CICG

The session will frame the AI4H breakthrough by providing an overview of the activities of the Focus Group on AI for Health, which came out of the 2018 Health breakthrough track, and the topics and aspects that the Focus Group and breakthrough chairs would like to address including opportunities for standardization of AI solutions for health. It will highlight how AI and machine learning can revolutionize healthcare in the areas of clinical decision support, personalized medicine, augmented diagnosis capabilities, medical imaging interpretation, therapeutic purposes and disease prevention. The session will provide an overview of the process and methodology of benchmarking AI algorithms for health, along with approaches and challenges to algorithms assessment. It will discuss how standardization process can lead to responsible adoption of algorithmic decision-making tools and to improving the accuracy of the algorithms. It will describe the proposal of a highly available system/ infrastructure for benchmarking the algorithms.

Objectives:
* Identify standardization opportunities for a benchmarking framework that will enable the broad adoption of AI for health (AI4H).
* Process to apply the benchmark dataset for testing new algorithms.
* What are different types of benchmarking we want to do.
* How to set-up an open source testing infrastructure that will allow 24h testing system to operate.

09:00-09:20 – Welcome session

Speakers:

* **Chaesub Lee**, Director of the ITU Telecommunication Standardization Bureau
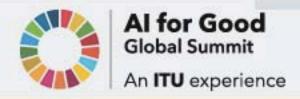* **Soumya Swaminathan**, Chief Scientist of WHO

09:20-10:30 – Session 1: AI and Health

Speakers:

* **Bernardo Mariano**, CIO of WHO
* **Wolfgang Lauer**, Head of the division "Medical Devices" of the Federal Institute for Drugs and Medical Devices
* **Thomas Wiegand**, FG-AI4H Chair, Professor at TU Berlin, and Executive Director of Fraunhofer Heinrich Hertz Institute
* **Naomi Lee**, FG-AI4H Vice-Chair, The Lancet
* **Frederick Klauschen**, Speaker BIH Digital Medicine Platform and Professor at Charite Berlin

Moderator:

* **Khair ElZarrad**, Deputy Director, Office of Medical Policy – Center for Drug Evaluation and Research at FDA

AI for Good
Global Summit
An ITU experience

Room 844, Level 3, CICG

In his 2017 message to the AI for Good Global Summit, UN Secretary-General António Guterres noted that while AI has enormous potential to help countries achieve the UN's Sustainable Development Goals (SDGs), it also poses risks to human dignity and human rights, and also raises new challenges for inclusive societies:

"The implications [of AI] for development are enormous. Developing countries can gain from the benefits of AI, but they also face the highest risk of being left behind... There are real concerns about cybersecurity, human rights and privacy – not to mention the obvious and significant impact on the labour market." – UN Secretary-General António Guterres

Building on globally accepted principles – including the UN SDGs and the Universal Declaration of Human Rights – the **AI, Human Dignity & Inclusive Society track** brings together actors from around the world to ensure that AI is deployed to promote peaceful inclusive societies, protect human rights and enhance human dignity.

The first segment of this track will focus on new developments in "Digital Identity" systems, and focus on essential elements of "good digital identity" to ensure that AI-based systems are inclusive, non-discriminatory, and beneficial for all.

The second segment will assess AI related initiatives dedicated to "Protecting Vulnerable Populations & Inclusion of Minority Groups."

Third, we will explore the relationship between AI and the information ecosystem and consider how to enhance "Quality & Diversity of Digital Information."

Finally, this track will close with a focus on "AI in Practice" with a practical exploration of how to ensure that AI is deployed in ways that protect and respect human rights.

The aim of the track:
* Identifying current projects addressing equality and inclusion in AI and discussing their effectiveness, challenges, and lessons learned.
* Mobilizing major stakeholders in the AI community to advocate and support proposals related to AI, inclusion, and human dignity on a regional, national, and international scale.
* Evaluating practical proposals and projects that could help alleviate inequality and promote human dignity.
* Seeking novel ideas and collaboration between projects in addition to finding opportunities for partnerships, mergers, and scaling with the aim of maximizing positive impacts.

Chair:
* **Eileen Donahoe**, Executive Director, Global Digital Policy Incubator at Stanford University

Sub-theme leads:
* **Manju George**, Head of Platform Services, Digital Economy & Society, WEF
* **Brandie Nonnecke**, Founding Director of the CITRIS Policy Lab at UC Berkeley
* **Steven Vosloo**, Digital Policy Specialist, UNICEF
* **Bhanu Neupane**, Program Specialist in Communication and Information, UNESCO

Track members:
* **Kathy Baxter**, Architect, Ethical AI Practice, Salesforce
* **Wafa Ben-Hassine**, MENA Policy Counsel and Global Policy Counsel, Access Now
* **Malavika Jayaram**, Executive Director, Digital Asia Hub
* **Jovan Kurbalija**, Executive Director, United Nations High Level Panel on Digital Cooperation
* **Marc Warner**, CEO, Faculty John Gibson, Director of Data Science, Faculty Bertram Malle, Brown University
* **Mark Latonero**, Research Lead, Data & Human Rights, Data & Society
* **Rebeca Moreno Jimenez**, Data Scientist, UNHCR Innovation
* **Ecem Yılmazhaliloğlu**, Alumni, AI4ALL ; Founder, Technoladies
* **Megan Metzger**, Associate Director of Research, Stanford's GDPi
* **Kathleen Siminyu**, Head of Data Science, Africa's Talking and Co-Founder of Nairobi Women in Machine Learning and Data Science Community
* **Nick Bradshaw**, Head of Cortex Ventures- Africa's first AI only focused VC Fund
* **Nigel Hickson**, Vice President, IGO Engagement at ICANN
* **Frits Bussemaker**, Chairman, Institute for Accountability and Internet Democracy
* **Manuel Garcia-Herranz**, Chief Scientist, Field Solutions, UNICEF
* **Bertram Malle**, Professor, Department of Cognitive, Linguistic, and Psychological Science, Brown University
* **Regina Surber**, Scientific Advisor, ICT4Peace and the Zurich Hub for Ethics and Technology
* **Thea Anderson**, Director, Digital Identity, Omidyar Network
* **Vincent Graf Naibel**, Strategic Technology Advisor, International Committee of the Red Cross
* **Natalie Smolenski**, SVP Business Development, Learning Machine
* **Carmela Troncoso**, Assistant Professor, École Polytechnique Fédérale de Lausanne
* **Carlos Moreira**, CEO, WiseKey
* **Marten Kaevats**, National Digital Advisor, Government of Estonia
* **Francesca Rossi**, Professor of Computer Science at University of Padova, Italy and IBM AI Ethics Global Leader

Rapporteurs:
* **Roya Pakzad**, Research Associate, Project Leader in Technology & Human Rights, Stanford's GDPi

Sole Rapporteurs:
* TBA

Involved UN Agencies: UNESCO, UNICEF, UNHCR Innovation, United Nations High Level Panel on Digital Cooperation
Involved Orgs/NGOs/others: CITRIS Policy Lab at UC Berkeley, the World Economic Forum, AI4ALL, Faculty, Access Now, Data & Society, Salesforce, Digital Asia Hub, Technoladies

Breakthrough Sessions: Scaling AI for Good

AI for Good is growing as a movement, and in the number of "for Good" applications and deployments.

This track asks: how do we scale the AI for Good movement to global capacity? More precisely, can we scale the number of applications and deployments further, to better meet the SDGs?

For starters, this is a community movement. And the AI for Good Global Summit has emerged as the annual synchronization of efforts among the community.

Next, we can track progress in a funnel for stages of each AI for Good project: (1) problem definition, (2) AI prototype, (3) initial deployment for product-problem fit, and (4) deployment at scale. Initial deployment is about entrepreneurs work with AI researchers and problem owners to deploy the solution into the problem domain and iterate until the solution is truly useful in the field. Once we have legitimate product-market fit in one deployment, we scale it up to into more deployments in other jurisdictions, with problem owners for each jurisdiction. Scale-up is for is maximum impact in each jurisdiction, which may have different KPIs. Finally, we can work to close the gap between problem owners and problem solvers with a combination of human-based approaches, "commons" public utility networks for data & AI, and other tools.

The aim of the Scaling AI for Good breakthrough session:

* Inspire and teach the audience about successful projects that have scaled globally, such as in internet infrastructure or global supply chains.
* Brief the audience about "for good" projects in AI that have identified the problem, created a prototype, and are in the process of deploying towards product-market fit. What lessons have been learned, what examples can we take from them?
* Raise awareness of tools that can help at each of the steps of the funnel.
* Briefs the audience about how data & AI commons can help scale up AI for Good.
* Mobilize the community to lend support, in specific steps in the funnel and with tools and techniques — all towards scaling AI for Good.

Chairs

* **Trent McConaghy**, Founder, Ocean Protocol
* **Alexandre Cadain**, CEO, Anima

09:00 — 10:30 — Session 1: Inspiration of Global Scaling

Room 4, Level 0, CICG

This session aims to inspire and teach the audience about successful projects that have scaled globally, such as in internet infrastructure or global supply chains. Speakers include Pindar Wong on scaling up the internet, and how change-makers can act locally with solutions tuned to their jurisdiction, while thinking globally. Sebnem Rusitschka will share her experiences in scaling AI at industrial giant Siemens.

Speakers:

* **Trent McConaghy**, Founder, Ocean Protocol
* **Pindar Wong**, Chairman, VeriFi (Hong Kong) Ltd.
* **Derval Usher**, UN Global Pulse, Head of Office for Pulse Lab Jakarta
* **Sebnem Rusitschka**, CTO of EnergiMine and Founding Researcher Freeelio
* **Ricardo Baeza-Yates**, CTO, NTENT & Director of Data Science, Northeastern Univ. at SV, USA
* **Francesca Rossi**, IBM AI Ethics Global Leader
* **Amir Ansari**, CTO and Co-Founder of Prodea Systems, Founder Telecom Tech Inc

Moderator:

* **Trent McConaghy**, Founder, Ocean Protocol

Breakthrough Sessions: AI for Space

This track will focus on the areas where AI techniques can be applied to space datasets in order to accelerate progress towards the Sustainable Development Goals (SDGs) but also the increasingly integral role that space and AI both have in protecting our planet and generating benefit for all humankind.

Discussions will put emphasis on the potential for AI and space to unlock a new era of planetary stewardship – leveraging AI's unprecedented capacities for prediction and rapid understanding of complexity on both a local and global scale.

By evaluating the current state of play in AI and Space, the track will involve discussion of new opportunities for AI and Space, and how we can overcome barriers to deployment, real-time insight and equitable access to data. The track will identify projects related to SDGs where AI and Space fields can be combined to deliver a positive benefit to humanity and discuss opportunities for interdisciplinary cooperation to move forward in these areas.

It will focus on facilitating discussions – around projects that will be presented – between the AI and Space community, policymakers, humanitarian organisations and potential collaborators, in an attempt to form a common consensus on how to approach issues such as data accessibility, trust, algorithmic inequity, accountability and use and misuse.

Aims of Track:

* Identify areas where there is a high potential for impact for AI in Space, for collective benefit and the potential partnerships and models that might enable progress
* Facilitate an open discussion on the barriers to deployment of AI tools, and begin thinking about what is needed to overcome them
* Find common agreement on requirements for data to enable beneficial AI in the Space sector
* Take the first steps towards agreeing broad principles around governance for AI and Space
* Identify selected projects or efforts that will spin-out of the track and begin to be realised

09:00 – 10:30 – Session 1: Super-charging space science

Room 3, Level 0, CICG

This opening session will share perspectives on how AI is supercharging space missions to have enhanced capabilities, and heralding a new era of scientific data analysis and knowledge discovery. But this AI era isn't just about the tools; in this session, speakers will share cutting edge use-cases and shine a light on methodologies and emerging best practice, such as assembling valuable (space) data sets, working with scientific partners and building consortia to solve complex challenges.

Key questions:

* Why space and AI?
* Why there is even more space data available these days
* SDGs that can be helped using space data

Session host:
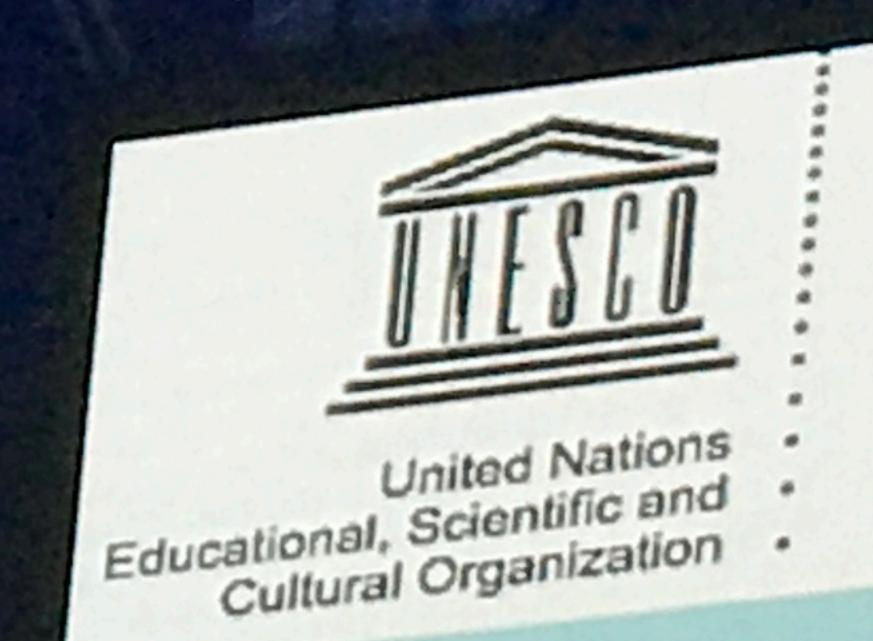
* **Anousheh Ansari**, CEO, XPRIZE, Space Ambassador; first female private space explorer

Opening keynote:

* **Wenjian Zhang**, Assistant Secretary-General, WMO

Speakers:

* **Jorge Del Rio Vera**, Scientific Affairs Officer (Space Technology), Space Applications Section of UNOOSA
* **Mark Cheung**, Astrophysicist, Lockheed Martin / NASA Solar Dynamics Observatory
* **Pierre-Philippe Mathieu**, Earth Observation Data Scientist, European Space Agency
* **Romaric Redon**, DataLab manager, AIRBUS Defence and Space, Airbus

We have a a new report on this issue. If you

Urgent Need for a Different Mindset

"What we don't understand, we fear. What we fear, we judge as evil. What we judge as evil, we attempt to control. And what we cannot control... we attack." — unknown

- Income gap is at the level of the 1920s.
- Real risk that the digital divide will widen into rift when underserved communities feel even more alienated and disenfranchised.
  - o Due to demands for new skills, lack of access to retraining, negative interactions with algorithm-based systems

Um, I think yesterday records while had menti

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Was the very first question that if he creat

Fear, Mistrust (57%)

"Afraid it will take over and destroy our working world"

"The great drawback here is that it is putting way too much trust in man-made machines. That will lead us into a lot of trouble in the long run."

"I don't see how this would help my children in the long run, when AI takes over jobs and replaces the human race in production and livelihood."

"Not learning first hand the enjoyments of doing yourself"

Interest, Curiosity (43%)

"Letting us have a hand in new technology"
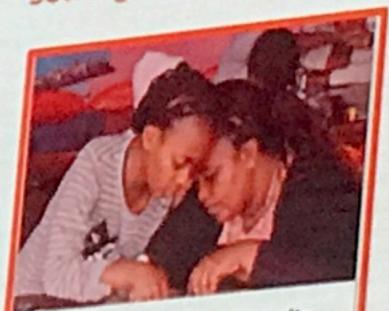
"It's going to be taking over the world so we better get our hands on this concept and ride"

"It will help for myself and my family to not be biased towards AI through being more educated on the concept."

"Help students develop better in their communities they can help the seniors learn things about technology."

"Im already behind in today's technology and my children are ahead. I believe we could all benefit in very positive way n grow rite along with the worlds speed."

The AI Family Challenge:
Solving Local Problems with AI

1: Describe your Community with Data

Tell your community's story by collecting data about it.

2: Identify Problems in your Community

Understand problems in your community by mapping out the causes that contribute to them.

3: Use AI to make an Animal Classifier

Learn about machine learning by using image recognition to classify animals.
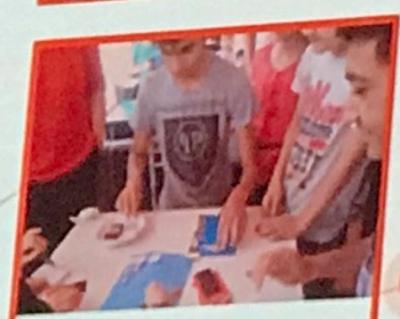
4: Use AI to make a Preference Guesser

Use machine learning to guess what someone might like.
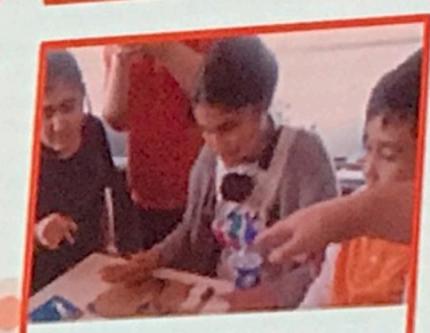
5: Use AI to make an Emotion Detector

Learn about natural language processing by creating a model that can guess someone's emotions.
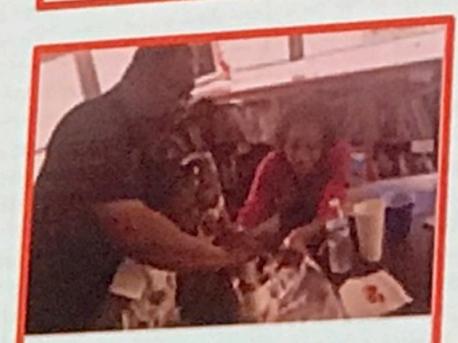
6: Brainstorm AI Solutions

Revisit the problem you worked on during Lesson 2 and brainstorm how you could solve it using AI.

7: Plan your Invention

Decide which parts of your invention are the most important and what your invention will look like.

8: Prototype your Invention
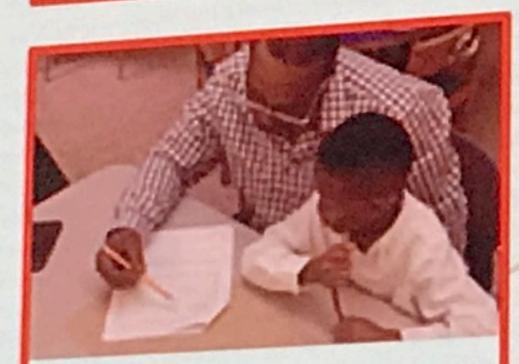
Take the first steps in creating your invention by making a simple prototype.

9: Pitch your Invention
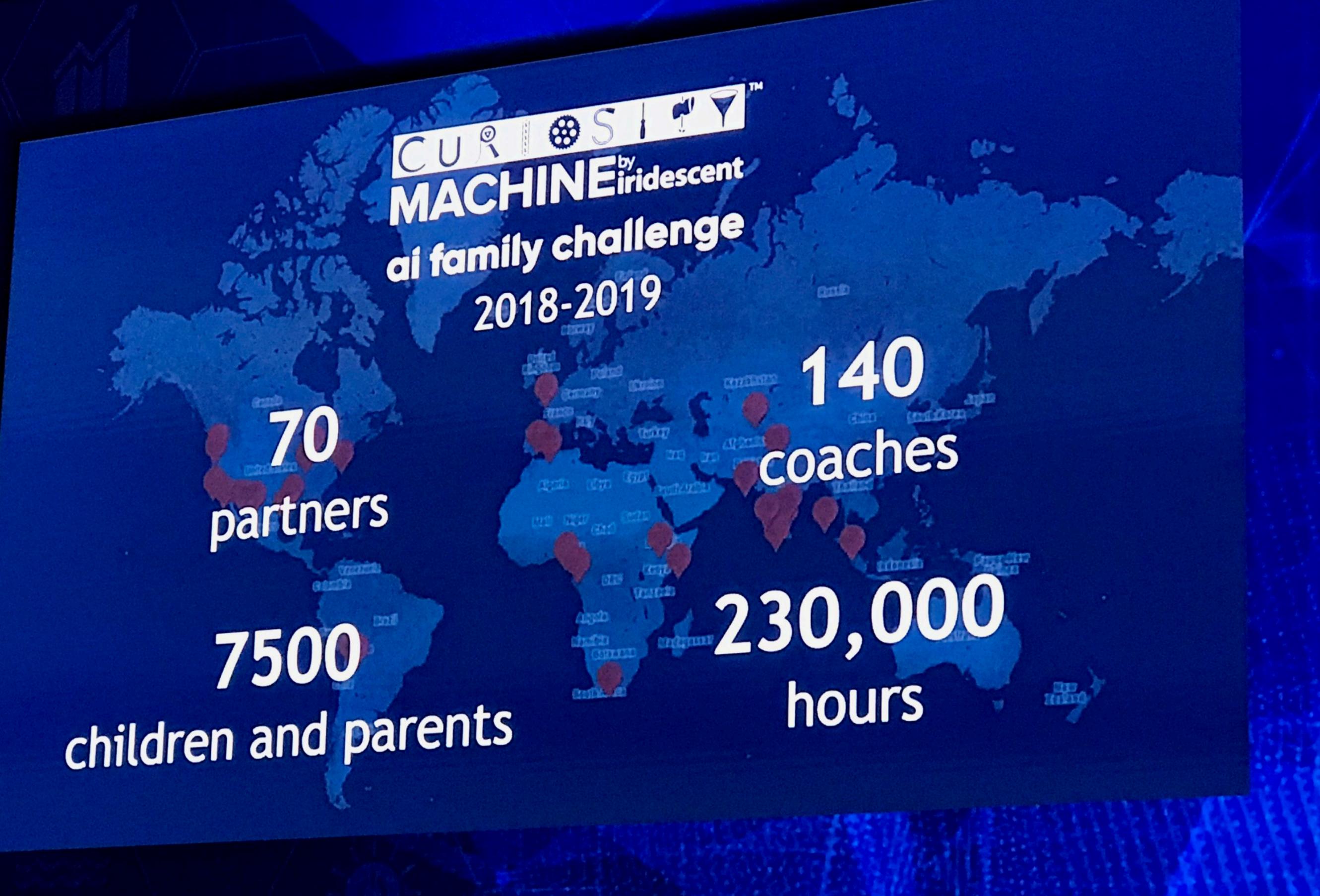
Create a pitch video to share your invention with the world.
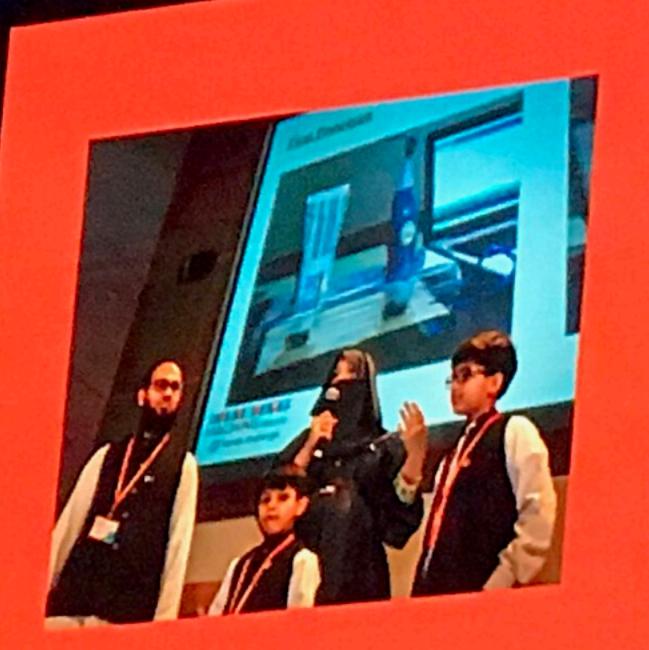
10: Share your Invention

Upload all of your materials and celebrate.

CURIOSITY MACHINE by iridescent
ai family challenge
2018-2019

70 partners

7500 children and parents

140 coaches

230,000 hours
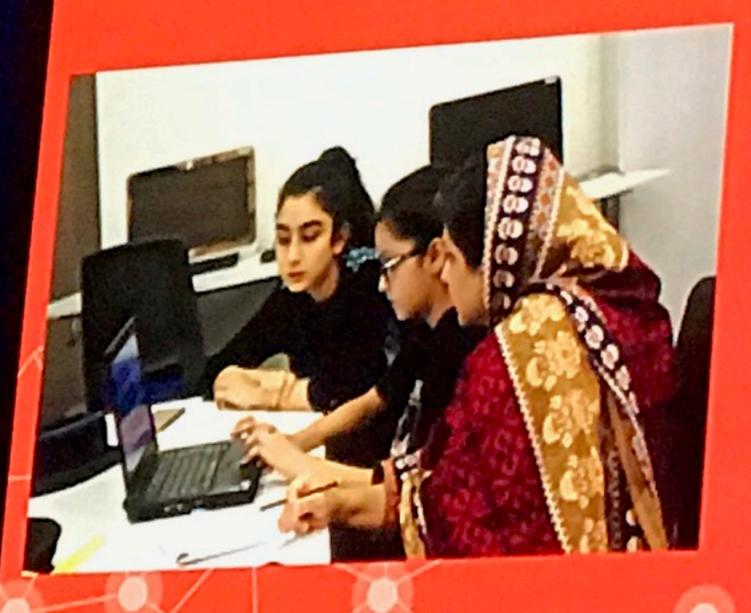
the content with these families and overall it w

Award
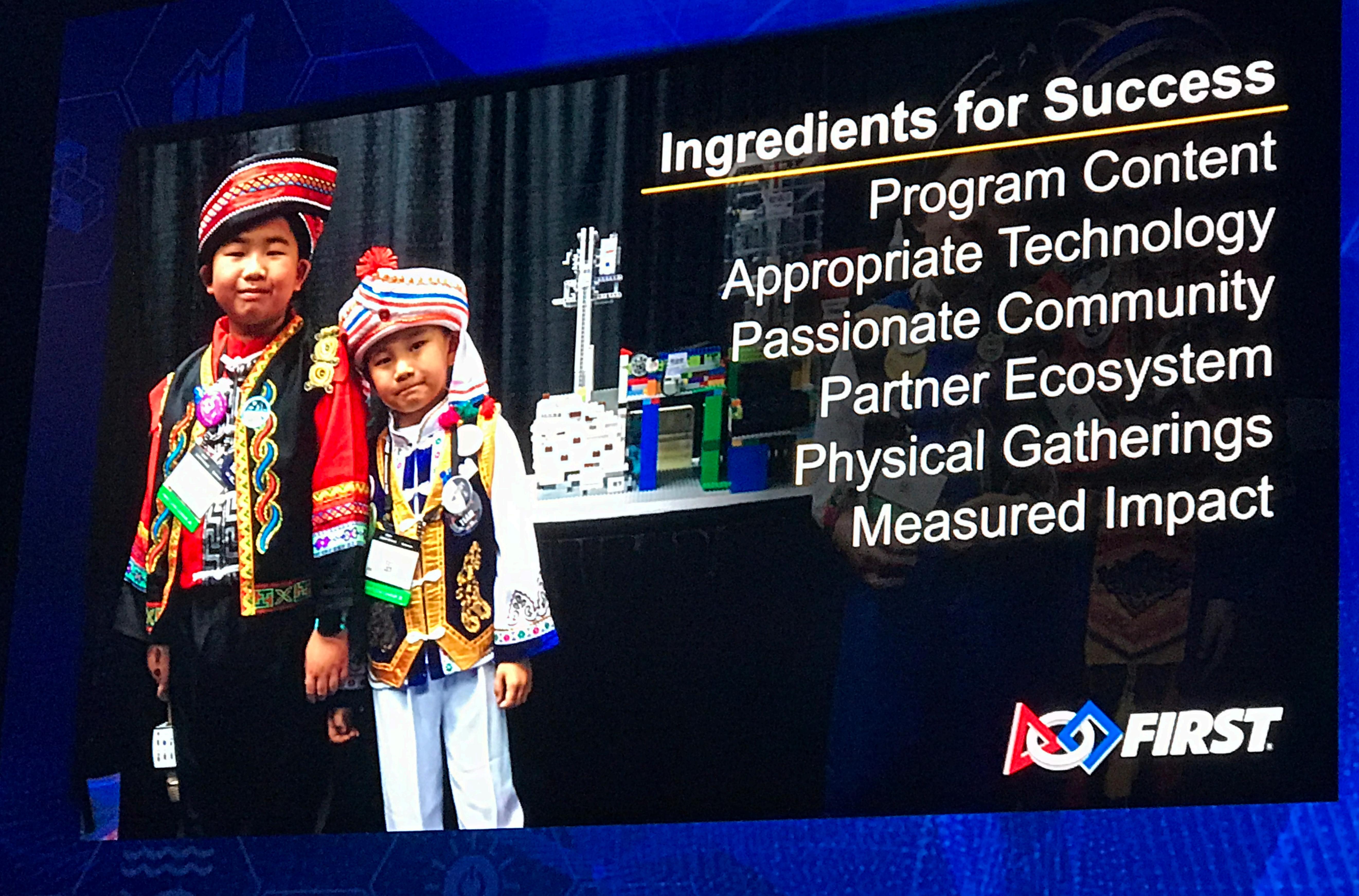
To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders.

Dean Kamen, Founder, *FIRST*

FIRST

Ingredients for Success

Program Content
Appropriate Technology
Passionate Community
Partner Ecosystem
Physical Gatherings
Measured Impact

FIRST

gatherings for not just competition but also
for measuring the impact

XPRIZE   acm

A(I)nthropology

The emergence of a "Third Culture"

Adam Russell
DARPA

DARPA

A(I)nthropology

The emergence of a "Third Culture"

Adam Russell

DARPA

DARPA A(I)nthropology?

"The fundamental requirement of anthropology is that it begin with a personal relation and end with a personal experience, but [...] in between there is room for plenty of computers."

— Claude Lévi-Strauss, epigraph to *The Use of Computers in Anthropology* (1965)

VOICES FROM DARPA

Episode 15: The DARPAnthropologist

In this episode of Voices from DARPA, sociocultural anthropologist Adam Russell, a program manager with the Agency's Defense Sciences Office (DSO), discusses his vision for a range of technologies that can help usher in a next-generation social science. At the crux of this future view are novel experimental designs, practices, and tools to tackle research challenges that traditionally have limited the value of social science for national security. Russell believes these advances may help yield scientific results that are far more reliable, validated, predictive, and otherwise valuable for making decisions and basing actions than has been the case to date. Among the emerging and morphing issues that affect national security, and for which Russell says new approaches in social sciences might help, is the way modern environments can impact social identities and the choices people and groups make based on those identities. Contributing to his own self identifications, and to his cognitive style as a scientist, are his experiences as a Rhodes Scholar at Oxford University and a national-level rugby player.

"Anthropologists! Anthropologists!"

3

DARPA Two Cultures?

Data

Context
Tools
Meaning
Goals
Prediction
Uncertainty

Why does anthropology need AI?

SCORE — Systematizing Confidence in Open Research and Evidence

Enhancing and accelerating social science via automation: Challenges and opportunities

Big Data

Why does AI need anthropology?

A "Third Culture"? A(I)nthropology
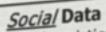
Dungeons and Dragons, not chess and Go: why AI needs roleplay

Social Data
Social heuristics
Reflexivity
Strategic interactions
Multi-agent systems
Counterfactuals
Embracing uncertainty

A "Third Culture"? A(I)nthropology

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Embracing uncertainty

SUCCESS — WHAT PEOPLE THINK IT LOOKS LIKE

SUCCESS — WHAT IT REALLY LOOKS LIKE

TELEVIZION

Just 32% of the 26,342 main characters in the fictional programmes are female...

Gender in children's television worldwide

always try to write to my younger self uh so as
that is until it ended the preaching as conferer

. It was a problem that to me seems so easy to fix. So Andy becar
went to pitch to our US networks. , Android was rejected by eve

XPRIZE

- Journalists are *all* AI reporters now. Many just don't know it yet.

- Automation and machine learning will touch every beat - policy, courts, defense, health, education, etc.

- But even experts and those who rely on automated decision making don't necessarily know what AI is or how it works.
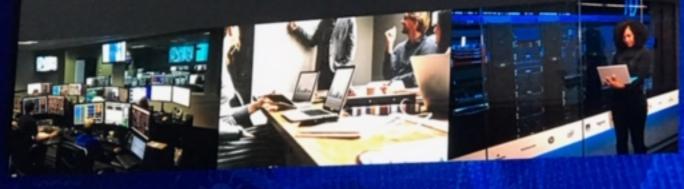
Newsrooms are scrambling to adapt to their own disruption and AI-bas...
opportunities:

1/4 fewer people work in newsrooms than a decade ago

There is more content on more platforms than ever before

AI tools already help the largest news media players do much more with less

of these frontier technologies for their cities, their famili

value proposition of

Challenges as an AI reporter:

- How do you interrogate an algorithm?
- Reporters create the first draft of history... they write down what happened, not what might.
- How does an editor fact check elements of a story related to AI?
- Perhaps 40% of the time what we're told by sources is AI... isn't AI.
- No one knows what's inside the black box.
- Sensationalist "clickbait" stories are the minority but are memorable and can get tremendous attention.

were supposed to figure this out butas a field we're would say we're not ready to interrogate

XPRIZE acm

AI-based Education Platforms to Impact Learning at Scale

A Case Study in K-12 STEM Education

Dr. Amir Zarkesh
Co-founder and CEO

polyup

of poly up to come and share what they're doing.

Exposing the Core of Learning

CS, AI Education
Coding

Numbers, Chars, Operators
Line of codes
Objects
Programs
Platforms

Limited Scaling
Non-equitable
Students Learning Data

Poly Challenge
to Mine

Learning
Polycoins

able to make this uh learning and engagement to to be
we called party

in four months

100,000+
Students & Teachers

100,000,000+
Learning Polycoins

10,000,000+
Problems Solved

XPRIZE acm

hundred thousand students and teachers don't involve mor
those coins have been generated within

Knowledge about artificial Intelligence

Status Quo of Workplace Learning

Widespread Approach

MOOC

MASSIVE
There may be 100,000+ students in a MOOC.

OPEN
Anyone, anywhere can register for these courses.

ONLINE
Coursework is delivered entirely over the Internet.

COURSE
MOOCs are very similar to most online college courses.

https://www.codlearningtech.org/2015/11/23/5-questions-what-you-need-to-know-about-moocs/

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lynda.com
https://www.lynda.com/

coursera
https://www.coursera.org/

https://pixabay.com/

Center for Data-Driven Business and Big Data Analytics • 2019

Not learning for the Sake of Learning

Gaining Action-Oriented Knowledge via Self-Regulation and Reflection

Goal Setting and Actuation is Important
(Zimmermann, 2002; Littlejohn, Milligan & Margaryan, 2012)

Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work. The British Journal of Educational Psychology, 70(1), 113–36.

Eraut, M. (2004). Informal learning in the workplace. Studies in Continuing Education, 26(2), 247–273.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory into practice, 41(2), 64-70.

Littlejohn, A., Milligan, C., & Margaryan, A. (2012). Charting collective knowledge: Supporting self-regulated learning in the workplace. Journal of Workplace Learning, 24(3), 226-238.

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Goal Setting and Actuation is Important
(Zimmermann, 2002; Littlejohn, Milligan & Margaryan, 2012)

Reflecting on Personal Experience & Received Knowledge is Important
(Eraut, 2000/2004)

., M. (2000). Non-formal learning and tacit knowledge in professional work. The British Journal of Educational Psychology, 70(1), 113–36.
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Technology can help by...

Prompting goal setting and reflection

Two Promising Ways to AI-literacy

Hands-on Training & Self-Regulated Learning about AI

https://commons.wikimedia.org/wiki/File:Two-ways-of-life.png

Two Promising Ways to AI-literacy

Hands-on Training & Self-Regulated Learning about AI

Contextualization

https://commons.wikimedia.org/wiki/File:Two-ways-of-life.png

regulation and reflection to contextualiz

Most Promising Way to AI-literacy

Best to be implemented in combination...

Hands-on Training & Self-Regulation

https://commons.wikimedia.org/wiki/File:Two-ways-of-life.png

A(I)nthropology

The emergence of a "Third Culture"

Adam Russell
DARPA

DARPA

A(I)nthropology

The emergence of a "Third Culture"

Adam Russell

DARPA

DARPA A(I)nthropology?

"The fundamental requirement of anthropology is that it begin with a personal relation and end with a personal experience, but [...] in between there is room for plenty of computers."

– Claude Lévi-Strauss, epigraph to *The Use of Computers in Anthropology* (1965)

VOICES FROM DARPA

The DARPAnthropologist

Episode 15: The DARPAnthropologist

In this episode of Voices from DARPA, sociocultural anthropologist Adam Russell, a program manager with the Agency's Defense Sciences Office (DSO), discusses his vision for a range of technologies that can help usher in a next-generation social science. At the crux of this future view are novel experimental designs, practices, and tools to tackle research challenges that traditionally have limited the value of social science for national security. Russell believes these advances may help yield scientific results that are far more reliable, validated, predictive, and otherwise valuable for making decisions and basing actions than has been the case to date. Among the emerging and morphing issues that affect national security, and for which Russell says new approaches in social sciences might help, is the way modern environments can impact social identities and the choices people and groups make based on those identities. Contributing to his own self-identifications, and to his cognitive style as a scientist, are his experiences as a Rhodes Scholar at Oxford University and a national-level rugby player.

https://www.youtube.com/watch?v=us60kBiDKEY&t=3s

"Anthropologists! Anthropologists!"

"Technology is a queer thing. It brings you gifts with one hand, and stabs you in the back with the other."

— C.P. Snow, *The Two Cultures*

Two Cultures?

Data

Context
Tools
Meaning
Goals
Prediction
Uncertainty

Why does anthropology need AI?

Big Data

Enhancing and accelerating social science via automation: Challenges and opportunities

A "Third Culture"? A(I)nthropology

DARPA

Dungeons and Dragons, not chess and Go: why AI needs roleplay

Social Data

Social heuristics
Reflexivity
Strategic interactions
Multi-agent systems
Counterfactuals
Embracing uncertainty

A "Third Culture"? A(I)nthropology

Dungeons and Dragons, not chess and Go: why AI needs roleplay

Social Data
Social heuristics
Reflexivity
Strategic interactions
Multi-agent systems
Counterfactuals
Embracing uncertainty

TELEVIZION

Just 32% of the 26,342 main characters in the fictional programmes are female...

Gender in children's television worldwide

always try to write to my younger self uh so as
that is until it ended the preaching as conferen

- Journalists are *all* AI reporters now. Many just don't know it yet.

- Automation and machine learning will touch every beat - policy, courts, defense, health, education, etc.

- But even experts and those who rely on automated decision making don't necessarily know what AI is or how it works.

journalism are not so different th

Challenges as an AI reporter:

- How do you interrogate an algorithm?
- Reporters create the first draft of history... they write down what happened, not what might.
- How does an editor fact check elements of a story related to AI?
- Perhaps 40% of the time what we're told by sources is AI... isn't AI.
- No one knows what's inside the black box.
- Sensationalist "clickbait" stories are the minority but are memorable and can get tremendous attention.

were supposed to figure this out butas a field we're
would say we're not ready to interrogate

of poly up to come and share what they're doing.

Exposing the Core of Learning

CS, AI Education
Coding

Numbers, Chars, Operators
Line of codes
Objects
Programs
Platforms

Limited Scaling
Non-equitable
Students Learning Data

polyup
1.0
July '18

K-12 Computational Thinking Playground In/Out Classrooms

, Uh, this environment um is it has

XPRIZE

polyup
2.0
July'19

Virtual Makerspace In/Out Classrooms

Poly Challenge to Mine

Learning Polycoins

able to make this uh learning and engagement to to be
we called party

XPRIZE acm

in four months

100,000+
Students & Teachers

100,000,000+
Learning Polycoins

10,000,000+
Problems Solved

XPRIZE acm hundred thousand students and teachers don't involve mor
those coins have been generated within

Status Quo of Workplace Learning

Widespread Approach

MOOC

MASSIVE
There may be 100,000+ students in a MOOC.

OPEN
Anyone, anywhere can register for these courses.

ONLINE
Coursework is delivered entirely over the Internet.

COURSE
MOOCs are very similar to most online college courses.

https://www.codlearningtech.org/2015/11/23/5-questions-what-you-need-to-know-about-moocs/

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lynda.com
https://www.lynda.com/

coursera
https://www.coursera.org/

https://pixabay.com/

Center for Data-Driven Business and Big Data Analytics • 2019

Not learning for the Sake of Learning

Gaining Action-Oriented Knowledge via Self-Regulation and Reflection

Goal Setting and Actuation is Important
(Zimmermann, 2002; Littlejohn, Milligan & Margaryan, 2012)

Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work. The British Journal of Educational Psychology, 70(1), 113–36.

Eraut, M. (2004). Informal learning in the workplace. Studies in Continuing Education, 26(2), 247–273.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory into practice, 41(2), 64-70.

Littlejohn, A., Milligan, C., & Margaryan, A. (2012). Charting collective knowledge: Supporting self-regulated learning in the workplace. Journal of Workplace Learning, 24(3), 226-238.

Not learning for the Sake of Learning

Gaining Action-Oriented Knowledge via Self-Regulation and Reflection

Goal Setting and Actuation is Important
(Zimmermann, 2002; Littlejohn, Milligan & Margaryan, 2012)

Reflecting on Personal Experience & Received Knowledge is Important
(Eraut, 2000/2004)

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individually or in social contexts   To transf

Two Promising Ways to AI-literacy

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Most Promising Way to AI-literacy

Best to be implemented in combination...

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Let's be efficient

UNIVERSITY OF CAMBRIDGE

What can AI do?
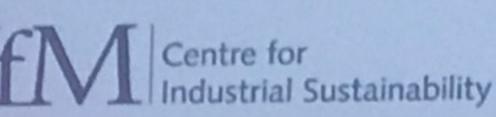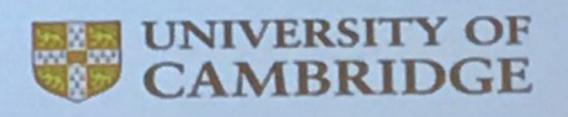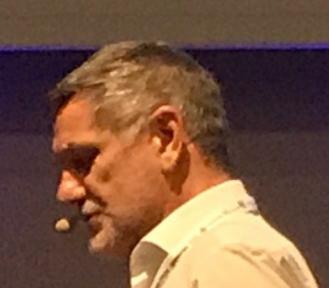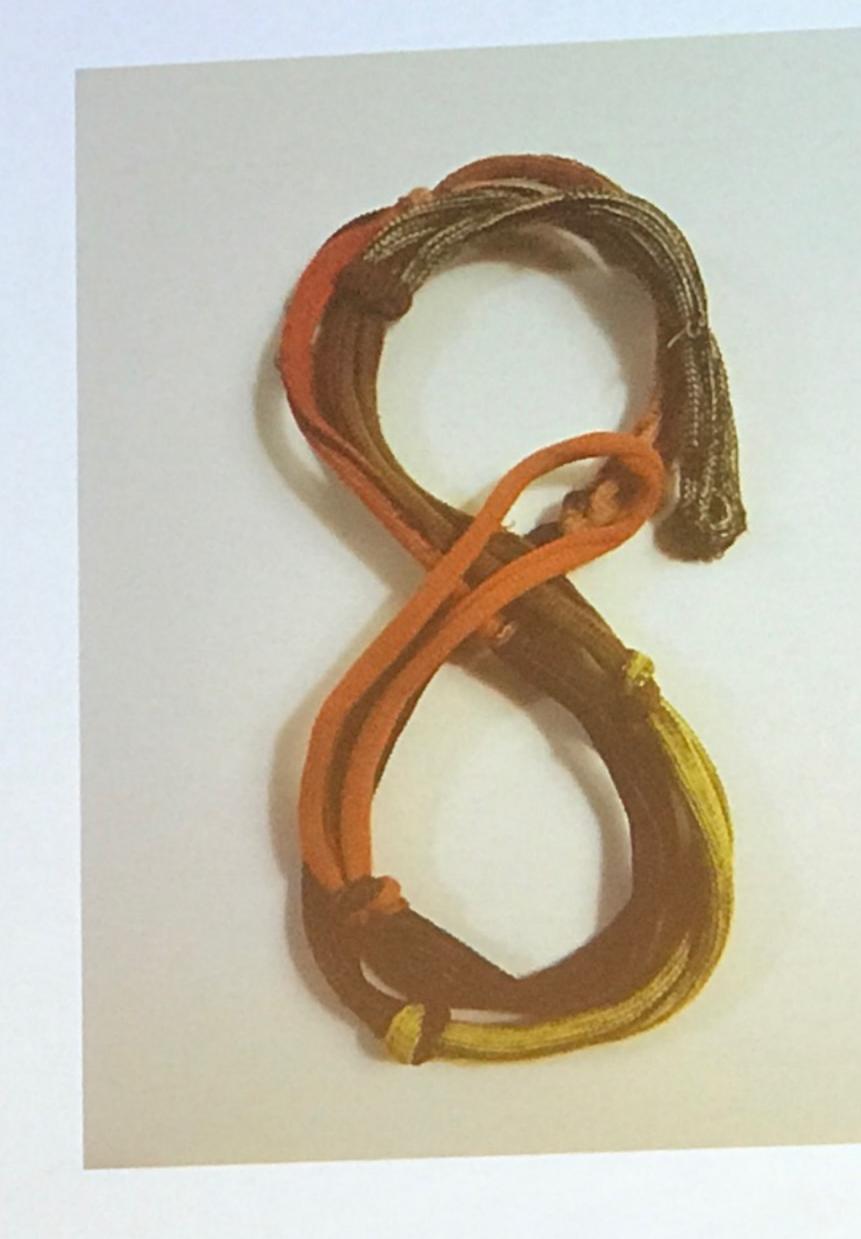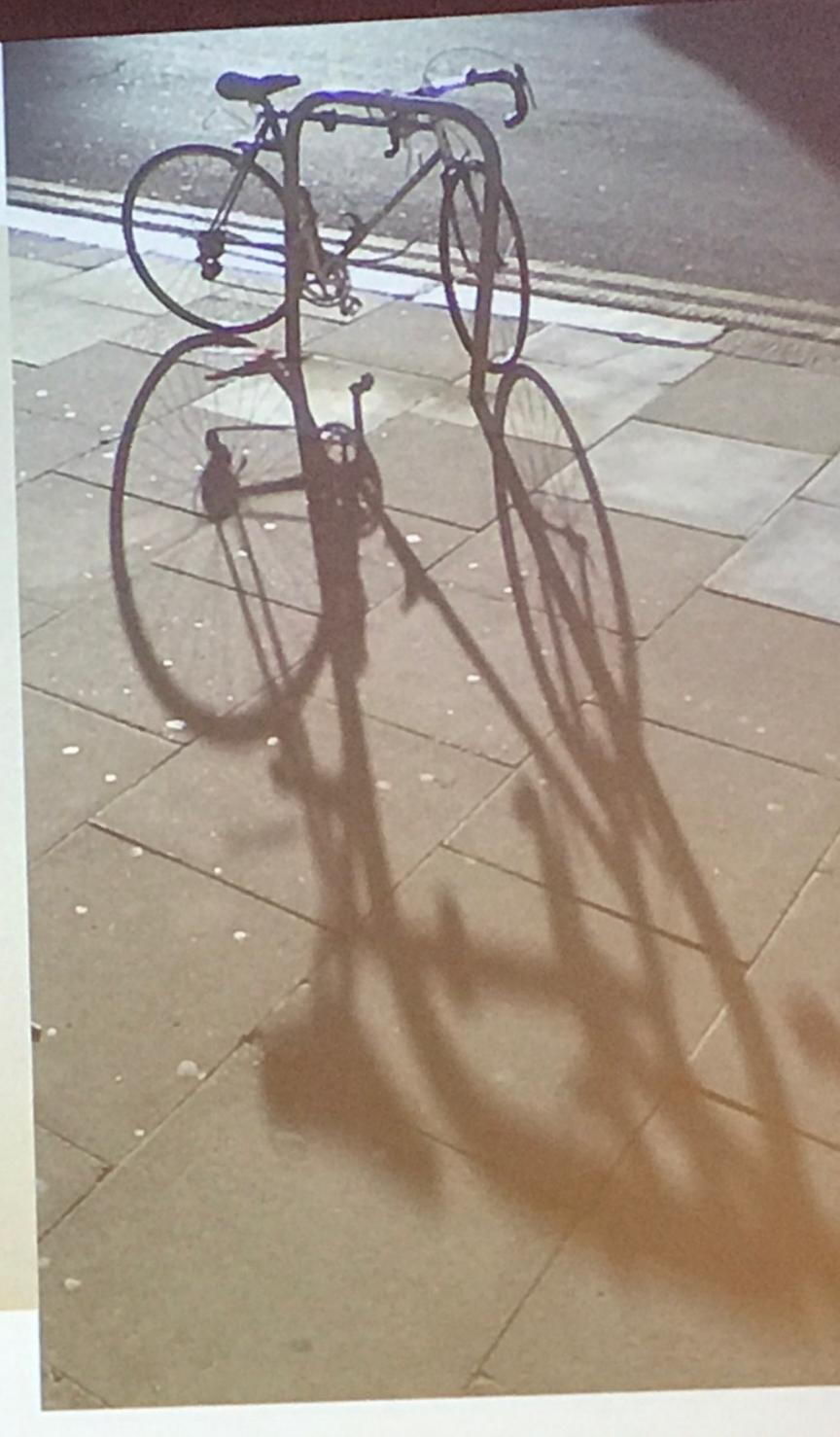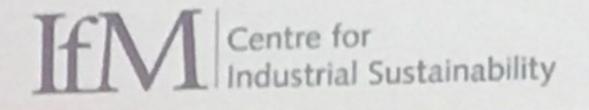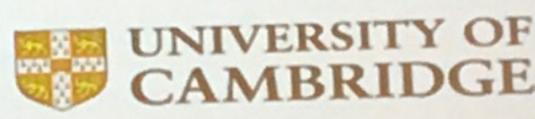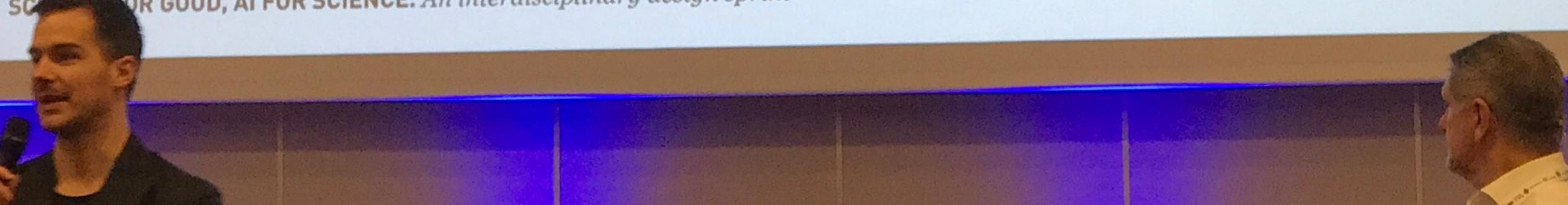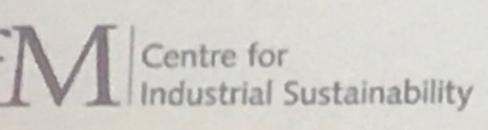
See waste   *(energy, water, materials)*
Be <u>disruptive</u>   *IS & AI & data & collaboration*
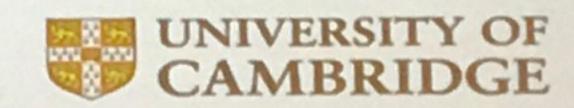
Challenge 1	See waste	*good or bad energy?*
Challenge 2	See variation	*in & between*
Challenge 3	See the best	*the art of possible*
Challenge 4	Tell everyone	*citizens, politicians*
Challenge 5	Share solutions	
Challenge n	???	

"The best way
to get a good idea
is to get a lot of ideas."

Linus Pauling

Project Debater – Speech by Crowd

➤ Better decisions should start by a careful consideration of relevant pros & cons

➤ Project-Debater Speech-by-Crowd harnesses the wisdom of the masses for *arguments*

➤ From arguments to narratives – Pro or con? Redundant or not? Themes? Argument quality? ...

➤ 'Social Media' debate - 1,755 arguments contributed from around the globe –

→ Special thanks to Bologna Medicina, Italy; VivaTech, France; and C2, Canada
→ For full results, see ibm.co/sbc

➤ Contact us by end of June, if you're interested in using a preliminary version...
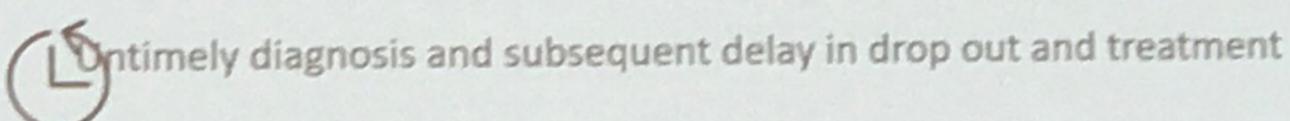
GROWTH IN IMAGE UTILISATION BUT LACK OF RADIOLOGISTS

STROKE AND TRAUMA
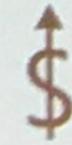
>300 Stroke Incidence from low and middle income countries

TUBERCULOSIS

1.3 M Deaths due to the Global Epidemic

Untimely diagnosis and subsequent delay in drop out and treatment
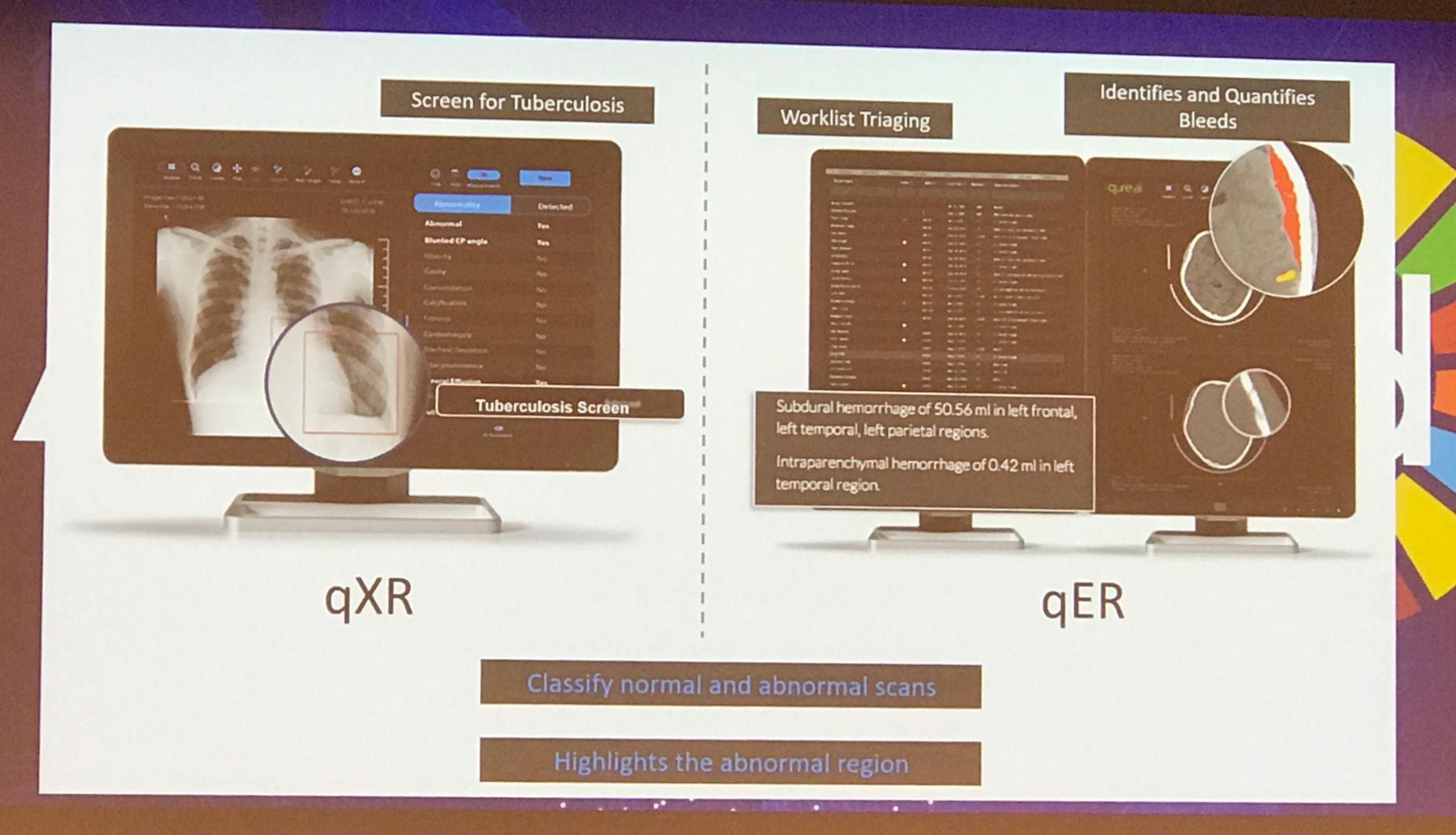
Missing diagnosis and un-reported cases

Increased cost burden for active screening

ree finalists and these three finalists are going to do uh three minutes pitch is a
en they're gonna be amazing. You're going to sea

Screen for Tuberculosis

Tuberculosis Screen

qXR

Worklist Triaging

Identifies and Quantifies Bleeds

Subdural hemorrhage of 50.56 ml in left frontal, left temporal, left parietal regions.

Intraparenchymal hemorrhage of 0.42 ml in left temporal region.

qER

Classify normal and abnormal scans

Highlights the abnormal region
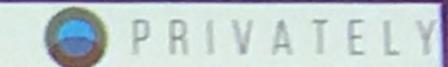
h machines to read ct scans, m r i's and x rays. But more than radiologists level racy in a minute

developers and platforms.In terms of technologywe have text image sentiment
as with add up together ，We can understand image. Um, it can understand b

AI is changing biotech & healthcare

spotless as eugenia from dot photon.Hello. ,   Hey, tell me your Junior from the fo
And and as you could see now this stage or this event

Images are more than pictures, they are data

Image data today:
- is not adapted for AI
- lacks interoperability
- is slow to process
- expensive
- no benchmark

data is not suitable for ai. There is a lack of interoperability formats don't spea
each other. This is very big. There's a very big files for the very slow to proces
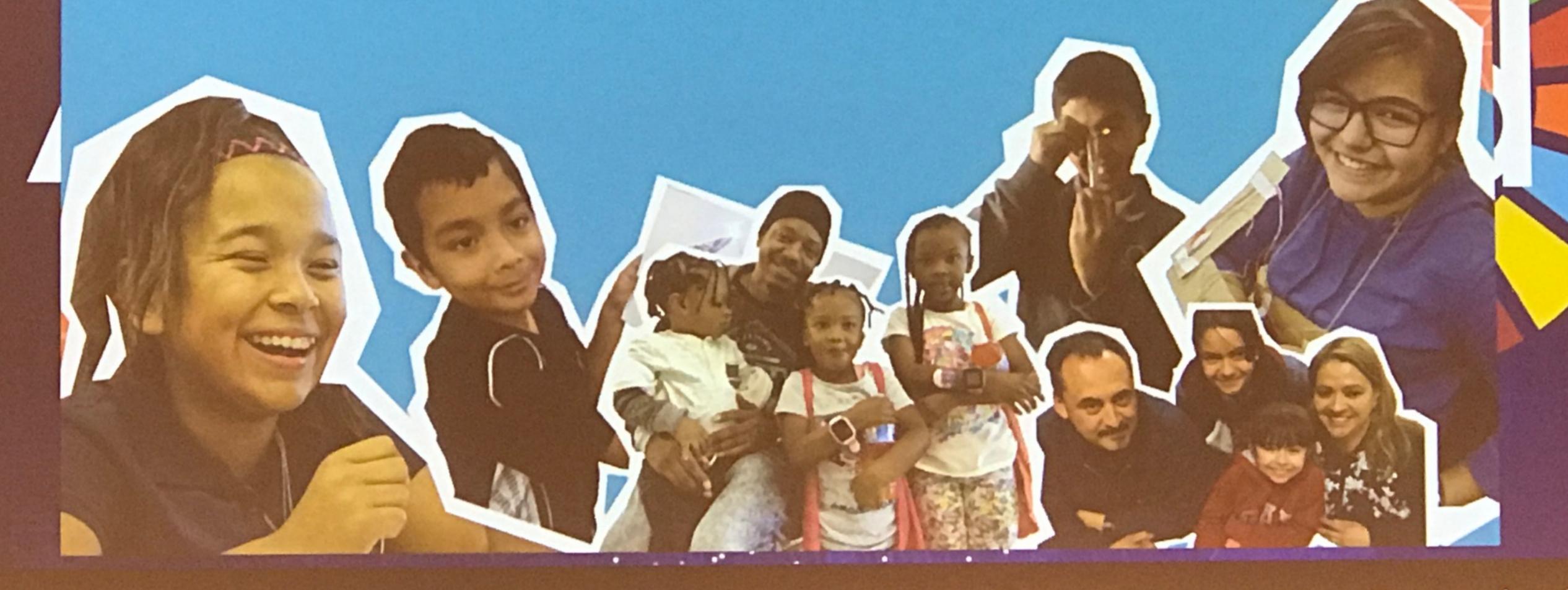
AI in here
to stay

+41 76 693 50 76   GET@DOTPHOTON.COM

We help to make it faster, accessible and more

AI-Education

ucation law.Is it a fact? Okayperfectit is this. , Hello, everyone. Um. So we had an
citing breakthrough session

World's largest AI-education program for families

Research Question: What dosage and support helps under-resourced communities develop a sense of efficacy as AI-innovators?

Collaborators: Google.org, McGovern Foundation, University of Malta, Malta Department of Education, AIDA (Kuwait, Austria), Power to Code (Spain), School of Computer Science, Carnegie Mellon University

Outcomes: 8000 children & parents, 150 educators, ~150,000 hours

Funding Committed $825,000

Funding Needed $500,000

families. So it'll be the first two generation program. The larger research question
be what dosage and support do under e

AI for Health

- Artificial Intelligence for Health (AI4H) offers substantial improvements for public and clinical health; e.g., early detection, diagnosis, and risk identification; treatment decision support; self-management; improved outcomes; ...

- For worldwide adoption, need evaluation standards on effective AI for Health

- Focus Group on AI for Health (FG-AI4H) created July 2018; open platform

- FG-AI4H goals: standardized framework for benchmarking and evaluation of AI solutions

AI for Health
An ITU Focus Group
In collaboration with WHO

agnosis, early detection, risk identification, treatment, decision support, self anagement, virus outbreaks, scenarios, chronic diseases like allergies

AI, Human Dignity & Inclusive Societies

Chair: Eileen Donahoe, Stanford's Global Digital Policy Incubator (GDPi)

AI & Digital Identity - Essential Elements of Good Digital Identity Systems

Sub-lead: Manju George, *WEF*

Speakers:

Carlos Moreira, *WiseKey*

Thea Anderson, *Omidyar Network*

Marten Kaevats, *Government of Estonia*

Carmela Troncoso, *EPFL*

Vincent Graf Narbel, *ICRC*

Natalie Smolenski, *Learning Machine*

Protection of Vulnerable Populations & Inclusion of Minority Groups

Sub-leads:
Brandie Nonnecke, *CITRIS Policy Lab, UC Berkeley*

Steven Vosloo, *UNICEF*

Speakers:

Kathy Baxter, *Salesforce*

Rebeca Moreno Jimenez, *UNHCR Innovation Service*

Ecem Yılmazhaliloğlu, *AI4ALL; Technoladies*

Enhancing the Quality & Diversity of the Digital Information Ecosystem

Sub-lead: Bhanu Neupane, *UNESCO*

Speakers:

Kathleen Siminiyu, *Africa's Talking*

Nick Bradshaw, *Cortex Ventures*

Nigel Hickson, *ICANN*

Frits Bussemaker, *Institute for Accountability and Internet Democracy*

Francesca Rossi, *University of Padova; IBM*

Human Dignity & Inclusive Society in Practice

Speakers:

Jovan Kurbalija, *United Nations High Level Panel on Digital Cooperation*

Marc Warner, *Faculty*

Bertram Malle, *Brown University*

Wafa Ben-Hassine, *Access Now*

Malavika Jarayam, *Digital Asia Hub*

Mark Latonero, *Data & Society*

Regina Surber, *ICT4Peace*

Megan Metzger, *Stanford's GDPi*

to talk about the take a ways from are really really jam packed uh track three
hich was about a I human dignity and inclusive
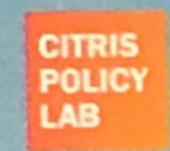
RECOMMENDATIONS
bit.do/AIforGoodRecs

Values-based principles for AI must be clearly articulated & operationalized for vulnerable and marginalized groups in governmental, intergovernmental, and private sector AI strategies.
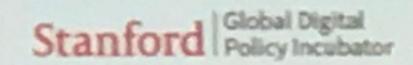
The public and private sectors must collaboratively develop strategies to ensure inclusion in AI development, education, and the workforce.
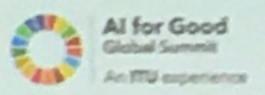
Brandie Nonnecke – nonnecke@berkeley.edu
@BNonnecke

CITRIS BANATAO INSTITUTE | CITRIS POLICY LAB

ur session we identified , Five primary recommendations from the for presenta
at were delivered
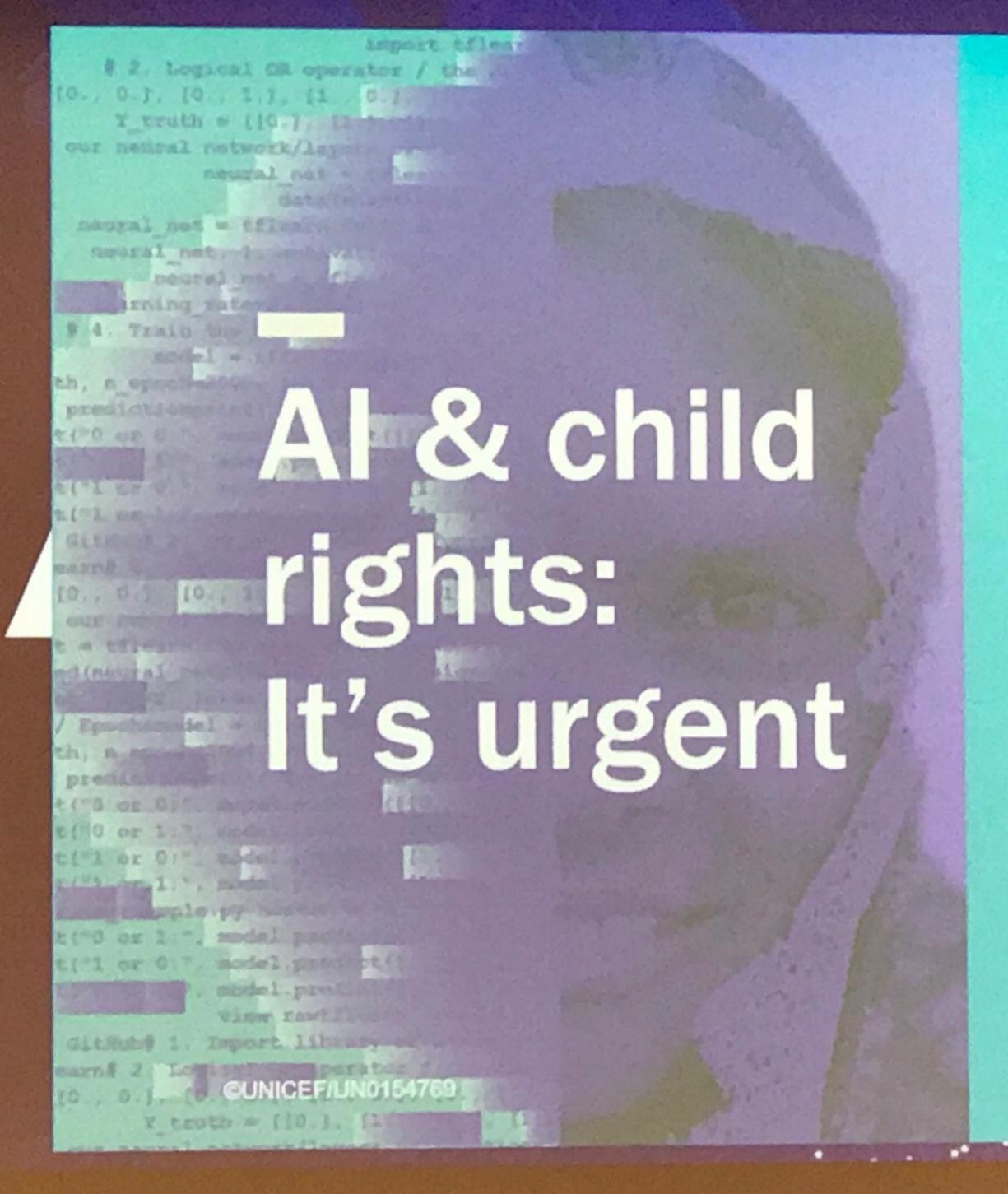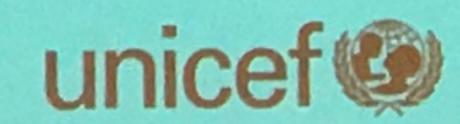
AI & child rights: It's urgent

Children have rights – the CRC

Almost no national strategy or ethical guidelines focus on children

Children stand to gain or lose the most from AI

unicef

©UNICEF/UN0154769

Hello everyone.however, one, my name is a genuine cinderella. I'm a 17 year old high school student from Turkey and their forum and founder of the ladies

You can learn more about us through our website that will be launched next week! 🐦 @ecemyilmazhali2

. So I found the organization take the ladies that promote inclusion AI and helps mitigate the diversity crisis in Turkey

ommunities is the major thing is the key to scaling AI for good as also embodied by
is very conference , Uh so um
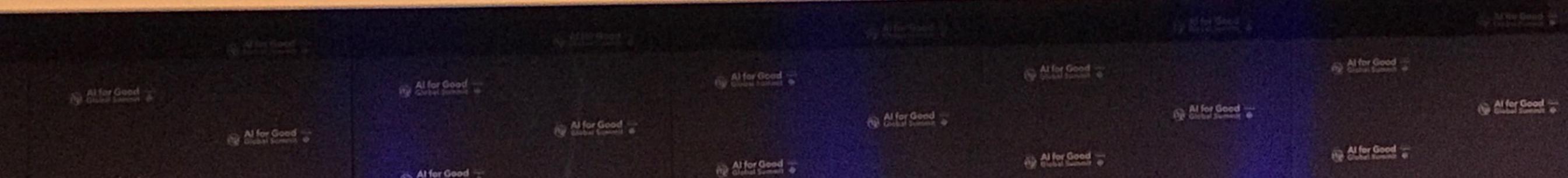
RECOMMENDATIONS

- **Leverage open platforms & new technology** - bring together data curators and people who can model data and put them into products

- **Multi-stakeholder approach** - encourage individuals with different skill sets to form teams to tackle real world problems

- **Legal framework & market incentives** - for companies to do good, that rewards data and model sharing and role of individual contributors

- **Replicate don't duplicate** - use, optimize and combine existing collaboration platforms, to be used by all user types
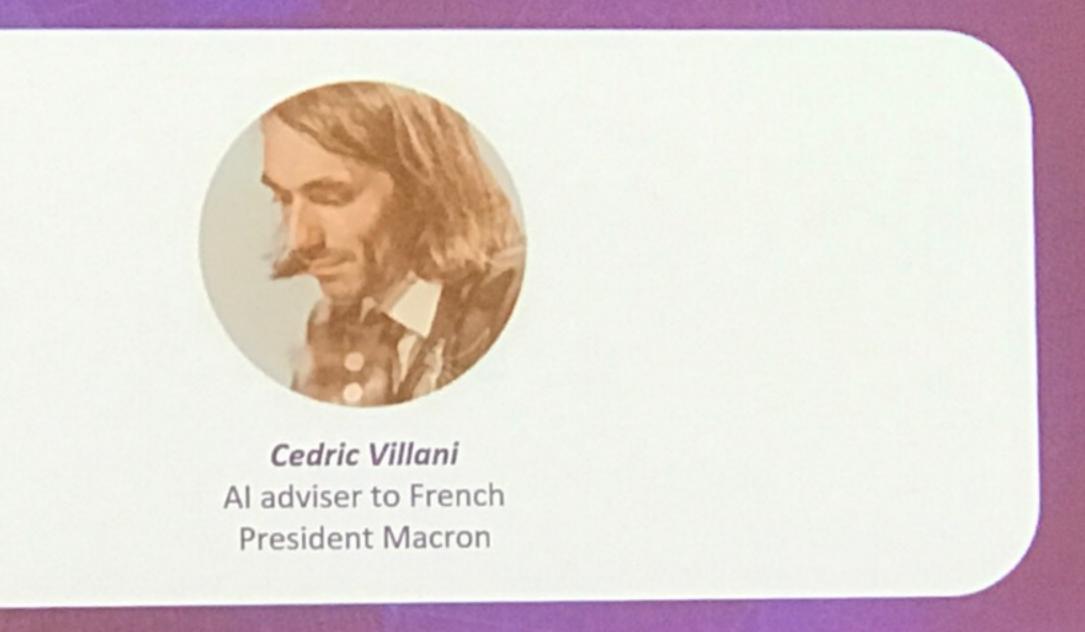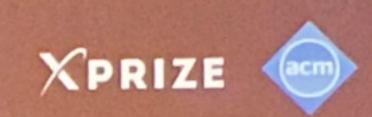
AI for Space

st but not least.James thank you.Thanks samir.it's my great privilege

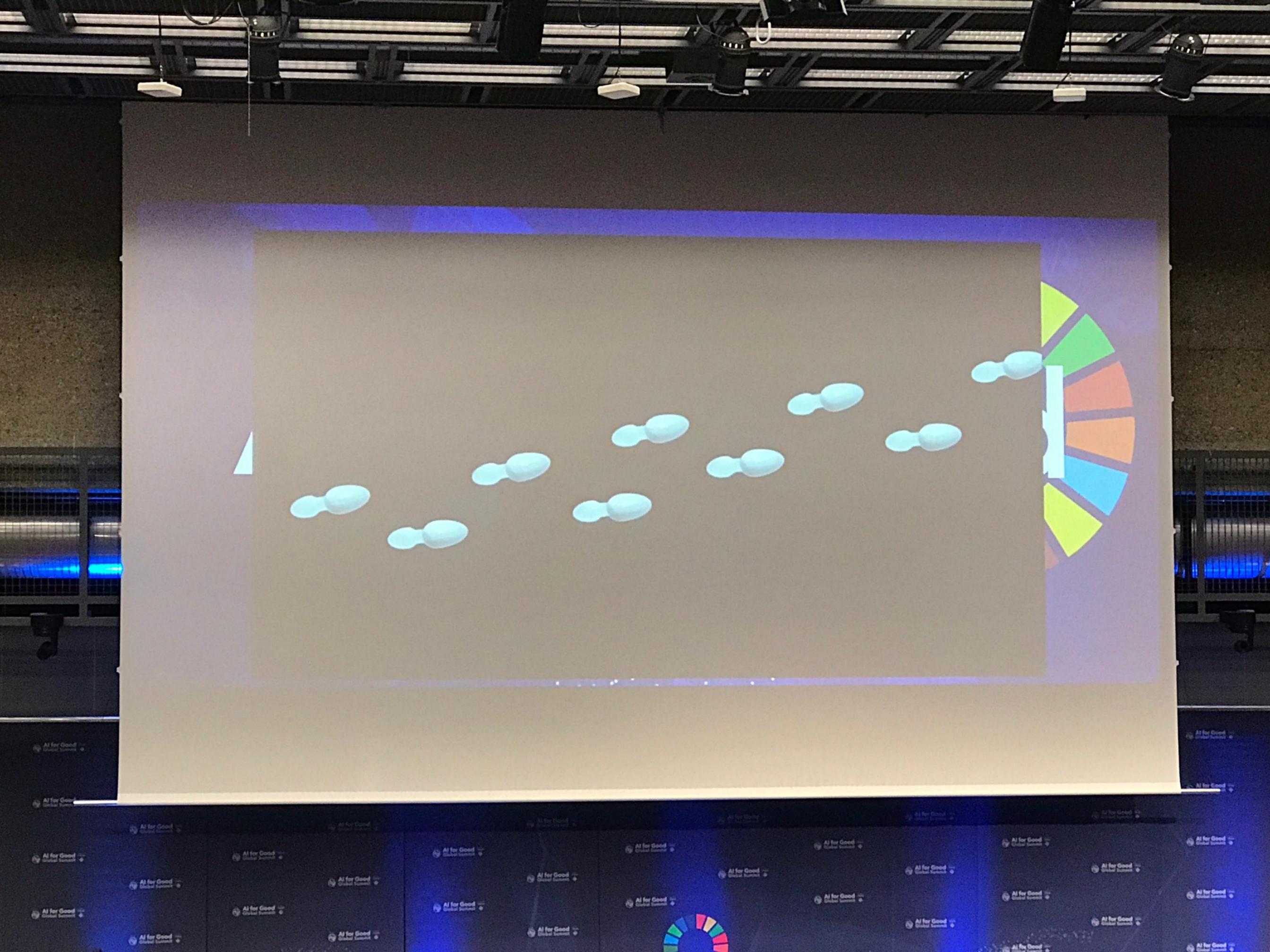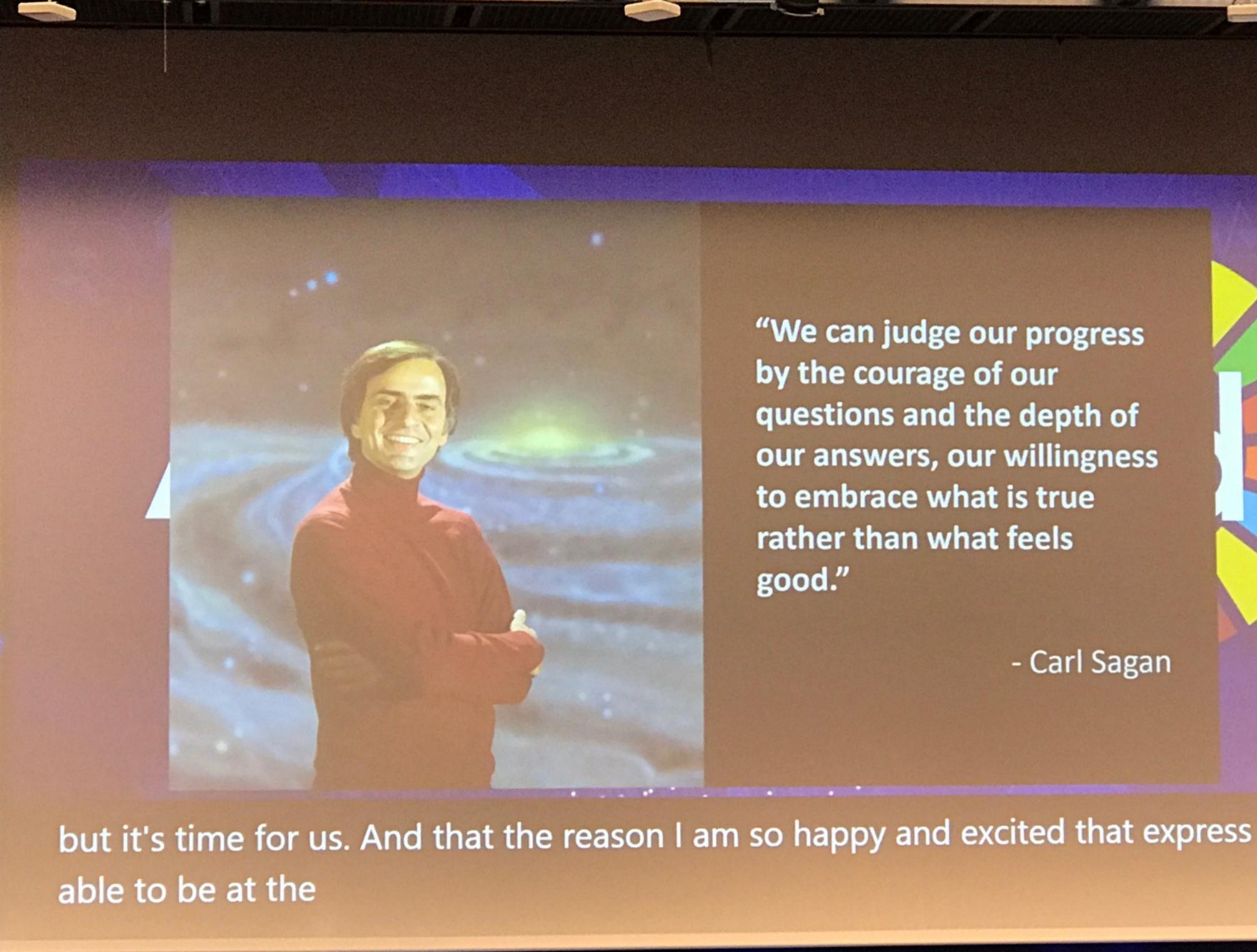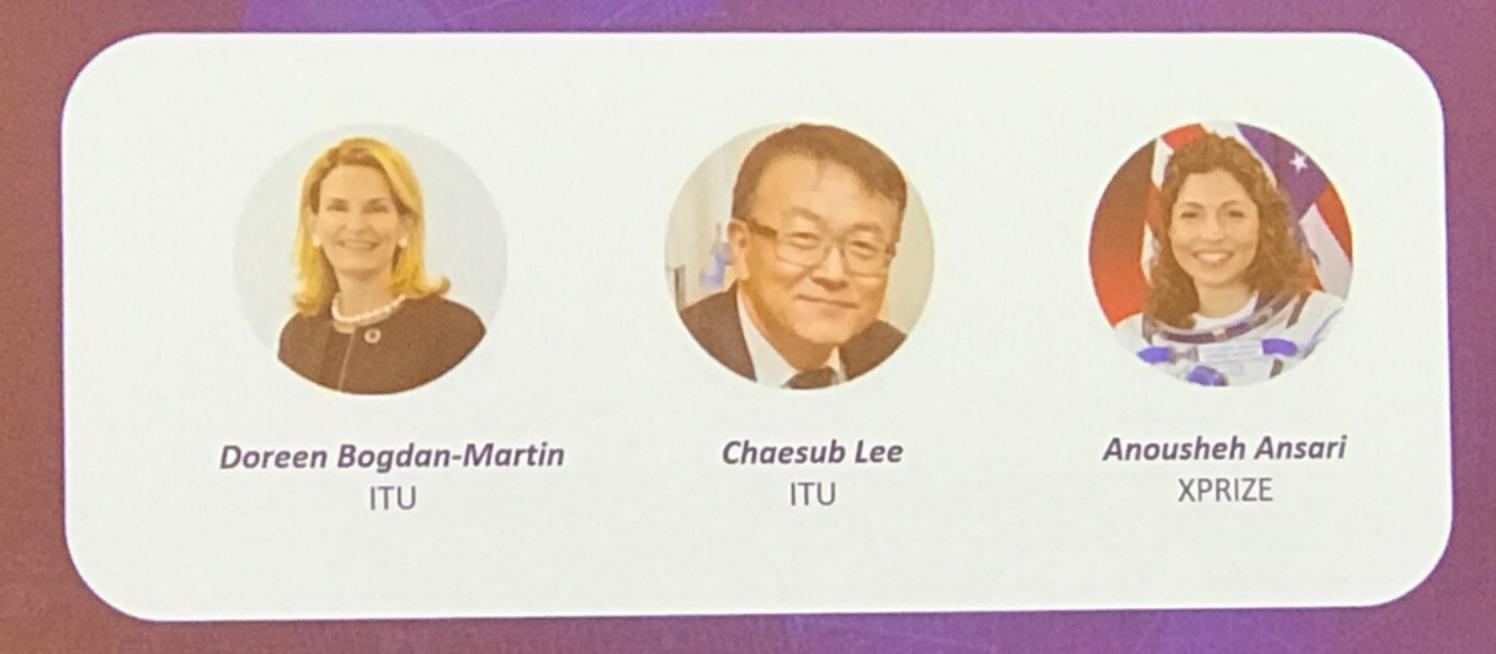science in general in the eighties, one of my favorite authors was due glass of shutter , An amazing

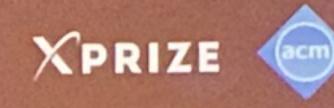> "We can judge our progress by the courage of our questions and the depth of our answers, our willingness to embrace what is true rather than what feels good."
>
> - Carl Sagan

but it's time for us. And that the reason I am so happy and excited that express able to be at the