AI for Good Global Summit

Accelerating progress towards the SDGs

4-8 May 2020
Geneva, Switzerland

#AlforGood
THE GOAL

- Connect **AI innovators** with **problem owners**, to identify practical applications of AI to accelerate progress towards the **UN Sustainable Development Goals**
Innovation for sustainable development

- Dynamic demo stage running during all breaks
- AI for GOOD Projects and UN Corner
- XPRIZE AI competitors, universities, start up pitching
AI - PUSHING THE LIMITS OF ARTISTIC INTELLIGENCE @ UN PALAIS
- The space between zero and one - Jojo Mayer, Drummer
- AI Dreams: World Premier of AI Composition – Maya Ackerman
- Culture and Storytelling in the Age of AI, by IVOW
- Interactive Empathy through Embodiology, Dr. S. Ama Wray
- 1st international exhibition of works of art on the topic of AI
- 7 artists working at the intersection of AI development and arts and creative industries
- Curated in partnership with Berlin-based art-science initiative STATE and supported by the Kompetenzzentrum für Kultur- und Kreativwirtschaft for the German Federal Ministry of Economy
AI for Good Global Summit

AI & ART

- AI Summit Cultural evening highlights video - [https://youtu.be/0S5yI0Dq9ps](https://youtu.be/0S5yI0Dq9ps)
AI TO PRESERVE CULTURAL INTEGRITY

POTENTIAL USE CASES
GOOGLE NEURAL MACHINE TRANSLATION (GNMT)

Machine Translation for Language Preservation and Education

- Language barriers for technology and communication exist -- 2,000 languages spoken in Africa alone.
- English used in 53.5% of Internet content, 10 South African languages only used in 0.1%.
- GNMT Supports translation of 103 languages, including 13 African Languages such as Igbo, Swahili, and Zulu.
- Research in “low-resource” languages, i.e. oral-only languages, lack of standardized spelling, too many variations across different dialects.
Computer vision & digital image processing for image/media reconstruction

- Can use one corrupted image as input to restore old/ruined photographs and videos.
EARLY WARNING SYSTEMS FOR HERITAGE SITE PRESERVATION

Use of machine learning and computer vision for predicting negative factors that could damage cultural heritage sites

- Natural disasters
- Escalating points of conflict
- Development activities
- Safeguarding sites more efficiently
- Especially important for more inaccessible sites
Creating more culturally inclusive data sets

- Crowdsourcing, tagging intangible cultural heritage
- Data sets that strongly represent the real world and mitigates cultural bias.
Great Wall of China presents a daunting challenge to historians working on its preservation.

China Foundation for Cultural Heritage Conservation to use the latest drone technology to gather thousands of photos and then analyze the data with AI to pinpoint exact areas that need restoration.

https://youtu.be/dTVEQLjwuL4
Venice Time Machine

• Digitize millions of manuscripts, multidisciplinary teams of researchers created semi-automatic scanners, robotic page-turners, and even an automatic handwriting recognition system to transcribe historical archives.

https://youtu.be/uQQGgYPRWfs
USING AI TO DIGITIZE THE LEAGUE OF NATIONS ARCHIVES

- 5 year project by the UNOG Library
- Scan all major League of Nations documents
- Use AI to recognize characters from typewriter and handwritten texts
- Final output will be 160TB
- 500,000 units of descriptive metadata
- 15 million pages (~3 kilometers)
- CrowdAI challenge has open participation
NOTRE-DAME 3D RESTAURATION

https://youtu.be/O05ZxXUvNag

- Used AI and 3D modelling to share a vision of a potential reconstruction of Notre Dame
- Just days after the fire...
USING AI TO WORK OUT WHO REALLY PAINTED THAT PICTURE?

- Machine learning can look for similarities between paintings
- ML able to learn on superhuman scale, expertise on many painting and painters
- Identify individual objects in painting and attribute to painters that did sections on other artists paintings
CAN A COMPUTER TELL A GOOD STORY?

- MEXICA - 20 años-20 historias – Rafael Pérez y Pérez
- AI-powered program called MEXICA that generates mash-ups of traditional short stories to create new ones
- Created 20 short stories on the Mexicas (Aztecs) original inhabitants of Mexic (City) area
- Written in both Spanish and English
Discussion points...

- What is most at risk culturally in your country that needs to be preserved?
- What are the biggest threats towards your cultural heritage and bottlenecks hindering preservation efforts?
- How might AI and technology help to preserve cultural integrity and heritage?
Initial thoughts for the event...

- World tour on status, problems and risks of monuments (2 or 3 sessions according to the regions or cultural differences)
- Use cases and experiments to use AI and ML to analyze and protect monuments status (1 or 2 sessions according to the participating experts)
- Priorities and action plans (Wrap up session)
Draft proposed timeline...

- 17 June 2019: Initial brainstorming
- Mid-July 2019: Collect focal points from the participating countries
- End-July 2019: 1st Conference call to share the views of the session
- Beginning-October 2019: Collect candidate issues from the countries through focal points and collaboration with UNESCO
- End-October 2019: Investigating AI/ML expert Labs, University and Industry on Cultural/Historical monument protection
- End-November 2019: 1st set of draft program for the session
- Beginning-February 2020: Collection of Problems and Risks
- Mid-March 2020: Identify possible solutions (solvers or experts) and invite experts to join the event