Al For Good In Action Sponsor Expo @ NeurIPS December 2, 2018



CAN AI HELP SOLVE HUMANITY'S GRANDEST CHALLENGES?



AI + Satellite projects



Tracking livestock to reduce conflict







AI + Smart Communities









SUSTAINABLE G ALS



Market Size...

Tourism: \$8T Transportation and automotive: \$10T Financial Services: \$15T Healthcare: \$2T **Education: \$2T SDGs: \$12T**

Source: McKiinsey, World Bank, 2017



How to incentivize the application of AI to SDGs?

2016

A **\$5 million global competition** challenging teams to develop powerful AI based applications and demonstrate how humans can collaborate with AIs to tackle the world's grand challenges.

HISTORY² RECORDS EXAMS DIAGNOSIS¹ RESULTS PRESCRIPTIONS

SEND ATTACH DELETE

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BY DATE

COMPETITION HISTORY:

Registration (2016):

156 teams 23 countries





COMPETITION HISTORY:

Round 1 (2017): 59 teams 14 countries





COMPETITION HISTORY:

Round 2 (2018):

30 teams 8 Countries





FOCUS:

Health: Diagnosis	Health: Treatment	Mental Health	Health: Wearable
3	3	3	2
Environment 4	Developing World 2	Disasters 1	
Humanizing Al 4	Business Law Enforcement 1 1	Science 1	
Education 5			



Al for Good in action

TEAM HIGHLIGHTS



Health: Diagnosis

Saving newborn lives by enabling quick and cost-effective diagnosis of birth asphyxia from infant cry



TEAM HIGHLIGHTS



Health: Wearables

Predicting and preventing addiction relapses using advanced wearable devices and patterndetection machine learning algorithms



TEAM HIGHLIGHTS



Developing World

Focusing on technological tools designed to improve the efficiency of malaria elimination efforts



MILESTONE PRESENTATIONS

10 milestone teams pitching their solutions

\$35k for 1st, \$15k for 2nd, \$5k for "People's Choice"

Reception & cocktail hour

Dec. 5th, 1 – 6pm Concordia University

bit.ly/xprizemontreal



How to scale AI solutions

2017: AI FOR GOOD SUMMIT

















Connective substrate





Connective substrate





Al Compute Pipelines in a Public Utility Network Data/Storage/Compute Can be Behind Firewall, on Cloud, or Decentralized





Avoid data escapes: bring compute to the data







Use Case: forest conservation

Soil-Water-Energy Nexus. A balancing / optimization task





Some forests require planting of trees, others require logging or controlled burning, or a combination of it, to thin out the density and reduce fire risks and water stress.



Use case: water quality

Satellite data based NDVI to measure the impact of forest restoration on water quantity

Water volumes can be better predicted and verified with multiple data inputs - satellite + ground data

Satellite data





Predicting and verifying water impacts of forest restoration



Temperature monitoring stations



ixo

Use case: Earlier & more accurate diagnosis of Parkinson's





Patients with Parkinson's Disease







Early Diagnosis Precision Management





Benefits to NeurIPS Community

- Supply of impactful problems to solve
- Low-friction connection with problem owners
- Way more data. Data commons. Data without data escapes.
- Improved funding situation. For generating data. For cleaning, labeling, feature engineering. For algs. For curation.
- Provenance in data & AI training.

How this applies to the Research Community

Research Communities and AI for Good























Guide to "AI for Good" at NeurIPS

Monday

Common Pitfalls for Studying the Human Side of Machine Learning -- Deirdre Mulligan, Nitin Kohli, Joshua Kroll --11-1, 220 E

Counterfactual Inference

-- Susan Athey

-- 230-430, 517 CD

Lack of Accountability in Data Science

-- *Laura Gomez* -- 530-620, 220 CDE

Tuesday

Machine Learning Meets Public Policy -- *Edward Felten* 830-920, 220 CDE

Wednesday

Investigations into the Human-

- AI Trust Phenomenon
- -- Ayanna Howard
- -- 215-305, 220 CDE

Thursday

Making Algorithms Trustworthy

- -- David Spiegelhalter
- -- 220 CDE

Friday

Workshop on Ethical, Social and Governance Issues in Al -- 516 AB

Saturday

Privacy Preserving Machine Learning -- 512 CDGH Machine Learning for the Developing World -- 510 BD AI for Social Good -- 517 B



3 days of invited talks compressed into 1 day of panels

A musical demonstration from acclaimed cellist Yo Yo Ma

Room 741 B Saturday

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XPRIZE

Alfor





Towards an AI Commons

The Unreasonable Effectiveness of Benchmarks

- 1. Repository of problems, Ex: UCI repository. ImageNet
- 2. Low friction access to problem domains
- Emergent effect: Continuous improvement of how well problem is being solved



Announcing ImpactNET

- 1. Facilitate access to a repository of problems
- 2. Emergent effect: Continuous improvement of how well problem is being solved
- 3. Open initiative and free

Welcoming participants

Join @ aicommons.com



THANK YOU

