

HEALTH IN THE SDG ERA

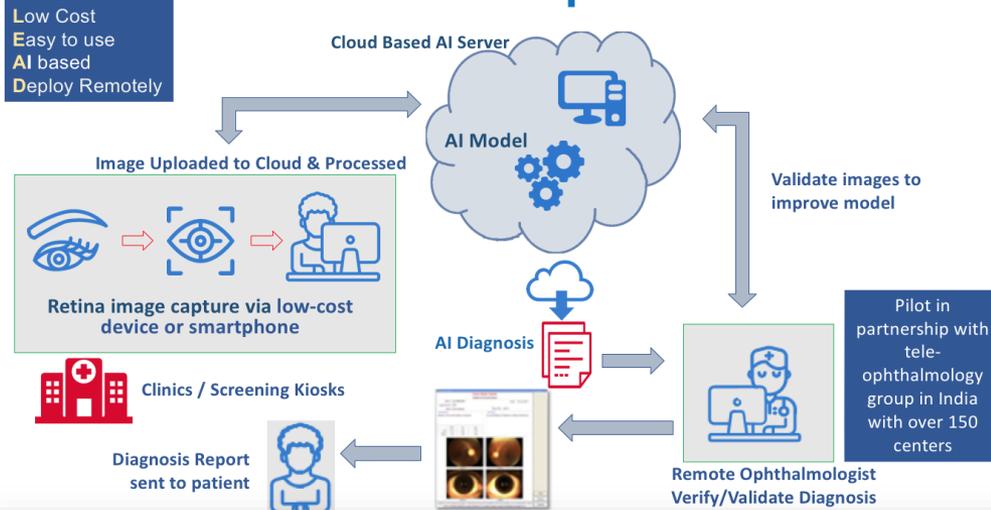


Project Pitches

Please remember when thinking of AI for Health it also being for Good

- Many thousands of doctors are missing worldwide
- Many people have no access to medical care
- 1.7 Bn have no bank account, but 1.3 Bn of them have a smart phone

Overview of Proposed Solution



Proposal Pitch

AI to Detect Vision Loss

Category

For profit

Subject

Diabetic Retinopathy (DR), serious eye-disease affecting people

Detection & Diagnosis of DR



Eye Exam by a trained eye-care specialist using Fundus Camera



Diagnosis by manual examination of images for DR

001

Credit: Arun Shroff, Co-founder, Medindia.net
AI for Good Summit, 2018.

About WatIF Health Portal

It is a multi-platform, High-impact, clinical application, designed for Primary Healthcare in resource constrained communities.

- Positioned as a Precursor to AI
 - Support clinical outcomes for PHC
 - Up-skills Ward Based Outreach Teams
 - Strengthens health systems
 - Supports **UHC** and **SDG3**
- A preconfigured clinical-Knowledge-system with clinical decision support capabilities.
- Has Predictive analytics without machine learning capabilities
- Comes with proprietary IOT devices
- Web Based and Cellphone enabled
- Works **ON** and **Off-line**
- **HL7** and **DHIS2** Compatible and
- **Highly Scalable with self supporting tools for users**



Current Needs

1. Collaboration with a global AI organization to conduct a joint POC on the use of AI in primary healthcare
2. Use-Case
 - A **high-impact** Integrated care service for **hypertension** and **diabetes** in a resource constrained environment
 - Incorporate machine learning capability to the current application
3. Resources Required
 - Access to device agnostic **IOT** technology
 - Mobilization of partners
 - **Machine Learning Capability**
 - Ability to Handle Big Data
 - Strengthen current **HL7** and **DHIS2** compatibility
 - Strengthen current **HIPAA** and **POPI** compliance



Proposal Pitch
AI based Health Portal

Category
For profit

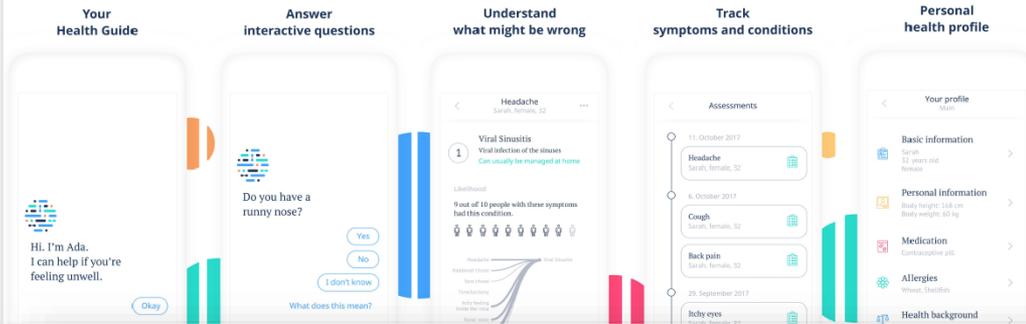
Subject
Health Data Integration Portal

004

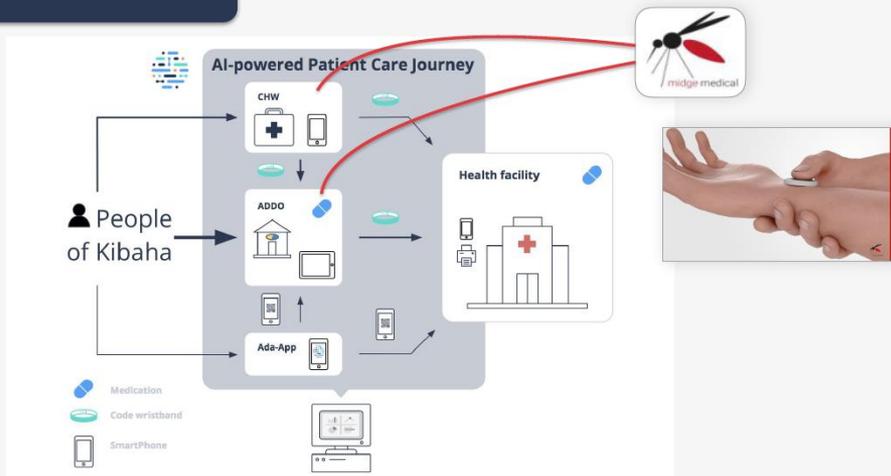
Credit: nao@watifhealth.com

AI for Good Summit, 2018

The World's Personal Health Guide



Empowering CHWs with AI



Proposal Pitch

AI powered infrastructure

Category

For profit

Subject

Symptom assessment and diagnoses

005

Credit: ADA

AI for Good Summit, 2018.



Proposal Pitch

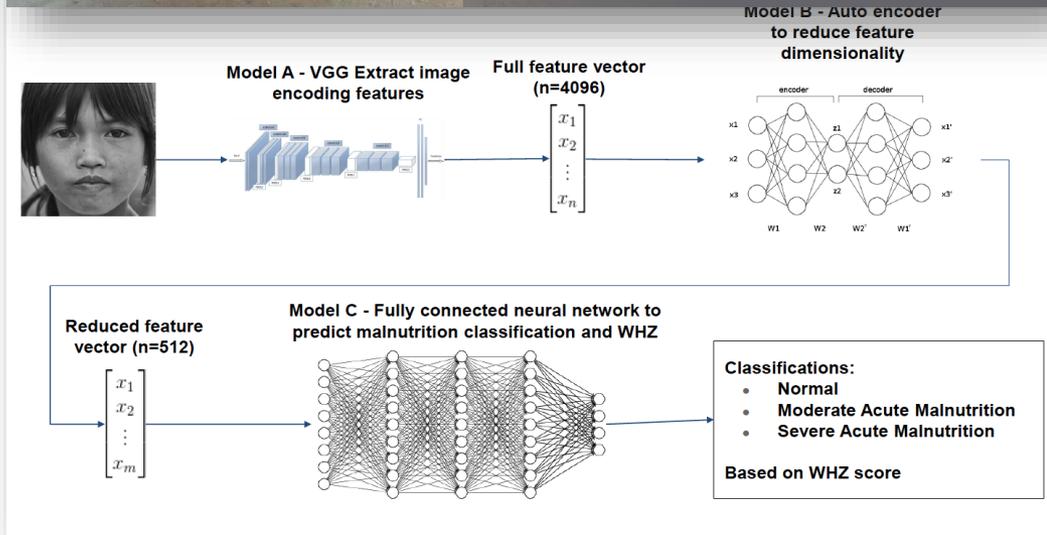
AI powered malnutrition detection

Category

Non profit

Subject

Extremely rapid observations of nutritional status



008

Credit: Kimetrica & UNICEF Partnership

AI for Good Summit, 2018.

What?

- Mobile solution
- Quick and easy to use
- Provides immediate data
- High accuracy
- Non-profit
- Open Source



Technology?

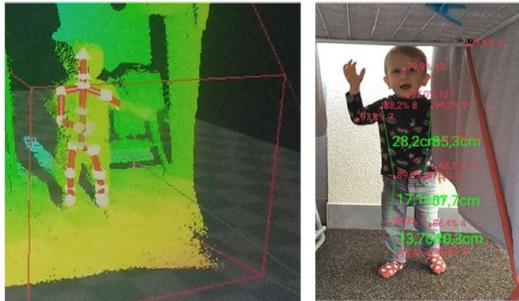


3D Augmented Reality scan plus machine learning

Measuring data: Google Project Tango

Processing data: Google Tensorflow

Training data: standardized nutrition surveys (SMART Methodology)



Credit: Welt Hunger Hilfe

AI for Good Summit, 2018.

Proposal Pitch

AI powered child growth monitor

Category

Non profit

Subject

Mobile solution for child growth monitoring



Norwegian Centre for
E-health Research

Artificial Intelligence based on real-world data

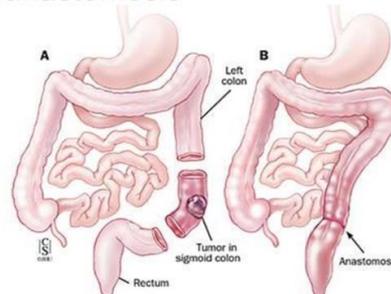
Anne Torill Nordsletta, Director Health Analytics



What and why

- Predict anastomosis leakage
- Early detection in pre-operative planning
- Early warning and decision support
- Previous study had a sensitivity of 100% and specificity was 72% with use of bag-of-words model

Primary colorectal anastomosis



Source: Ferris, Robert. Retrieved from
<https://www.slideshare.net/RobertFerris5/anastomotic-leak-following-colorectal-resection>

Proposal Pitch

**AI-based predictive analysis of free
text EMR data**

Category

Non profit

Subject

Improving predictive accuracy

O11

Credit: Anne Torille Nordsletta

AI for Good Summit, 2018.

Boost capabilities at the frontlines



Solutions to not just improve frontline workers' and primary care givers' productivity, but to empower them with new capabilities.

Novel planning and information applications



Applications for surveillance and prediction. Using AI for automatic planning of manpower, supplies and operations.

Diagnostics in low resource settings



Prevalence of mobile phones and technology advances can enable a new class of diagnostics applications.

Proposal Pitch

AI-for public health in India

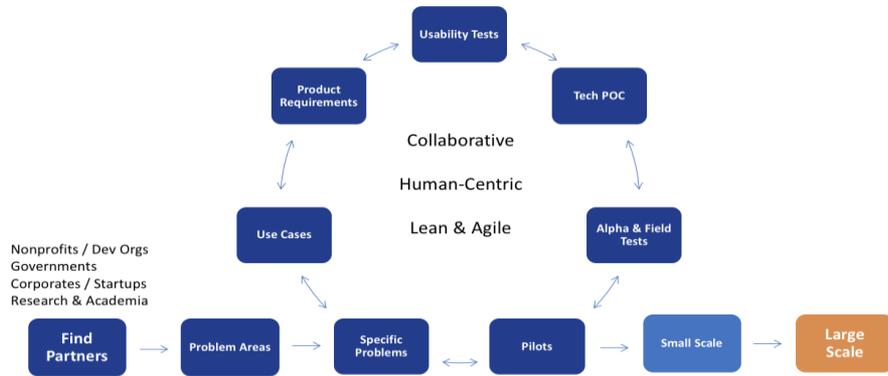
Category

Non profit

Subject

Scaling AI solutions at health systems level

Solutions themes that are emerging



Iterative co-creation with partners key to impact at scale

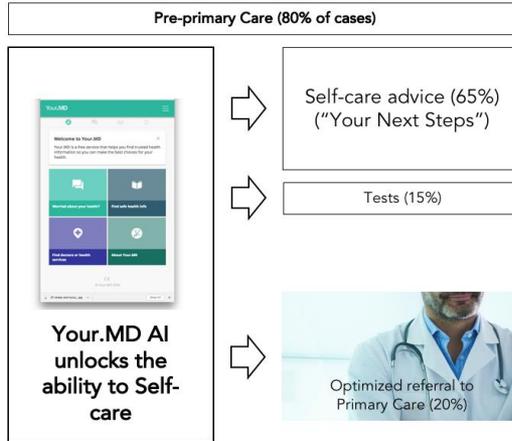


Credit: P. Anandan, Wadhvani Institute for AI
AI for Good Summit, 2018.

The Solution: Pre-primary Care with AI



Your.MD, an automated generalist doctor that can help millions of people self-care and relieve primary care physicians from unnecessary work

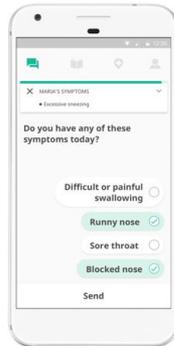


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Your.MD AI Unlocks Self-care

Our AI helps people to:

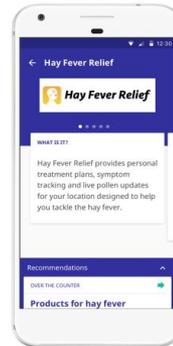
1. Understand their **individual probability** to suffer from a condition
2. Get **safe information** in partnership with NHS
3. Know what **best to do**:
 - o Emergency
 - o See/talk to a doctor
 - o Self-care options: pharmacies, tests, apps, etc - **80% of the cases**



Understand what best to do in each case



Safe health information



Our B2C monetisation: Cost Per Click OneStop Health™

Proposal Pitch

Pre-primary Care with AI

Category

For profit

Subject

Primary care assistance

013

Credit: Your.MD

AI for Good Summit, 2018.

Tackling the snakebite humanitarian crisis:

Snapp: First medical decision-support tool for snake identification based on AI and global collaborative expertise

Dr. Rafael Ruiz de Castañeda
Dr. Isabelle Bolon
Institute of Global Health
Faculty of Medicine
University of Geneva

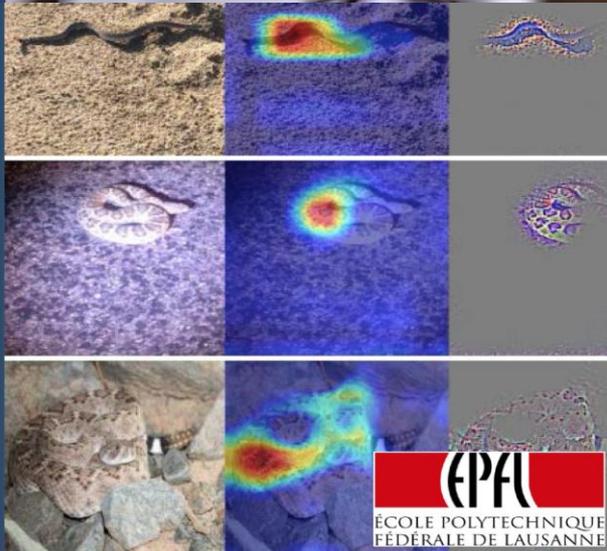


Source: Jacobus van Niekkerk



Objective 2:

Develop and test a system to **identify snakes from photos based on AI** (led Prof. Salathé, EPFL)



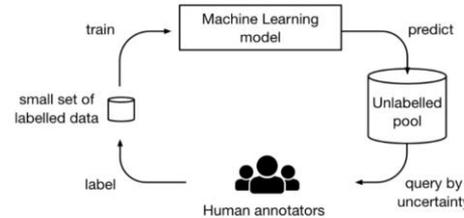
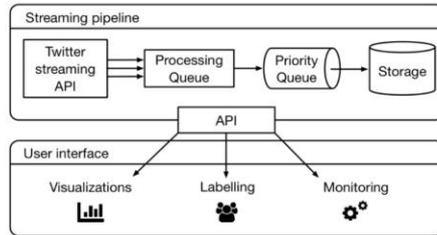
Source: Mohanty from Digital Epidemiology Lab - EPFL

Credit: Ruiz Castaneda, Marcel Salathe
AI for Good Summit, 2018.

Proposal Pitch
AI-based snake identification

Category
Non profit

Subject
Rapid response support to health workers to treat snakebites



Proposal Pitch

AI-based social media mining to track health trends

Category

Non profit

Subject

Tracking health trends relevant for public health

Digital Epidemiology Lab

- Develops and maintains the **Crowdbreaks** platform
- Coordinates the overall project

INCENTIVE:

- To develop an partnership between public health organizations and academia in the field of digital epidemiology

Stakeholders, Public Health Partners

- Use **Crowdbreaks** to track health trends of interest in dedicated projects
- Provide project-relevant resources

INCENTIVE:

- To partner with academia to solve digital epidemiology problems openly and transparently

Academic Partners & Contributors

- Contributes to the overall pipeline of **Crowdbreaks**: Development of algorithms, methods, platform, backend, etc.

INCENTIVE:

- To partner with public health stakeholders to help solve their problems, and get scholarly credit for it (i.e. publications)

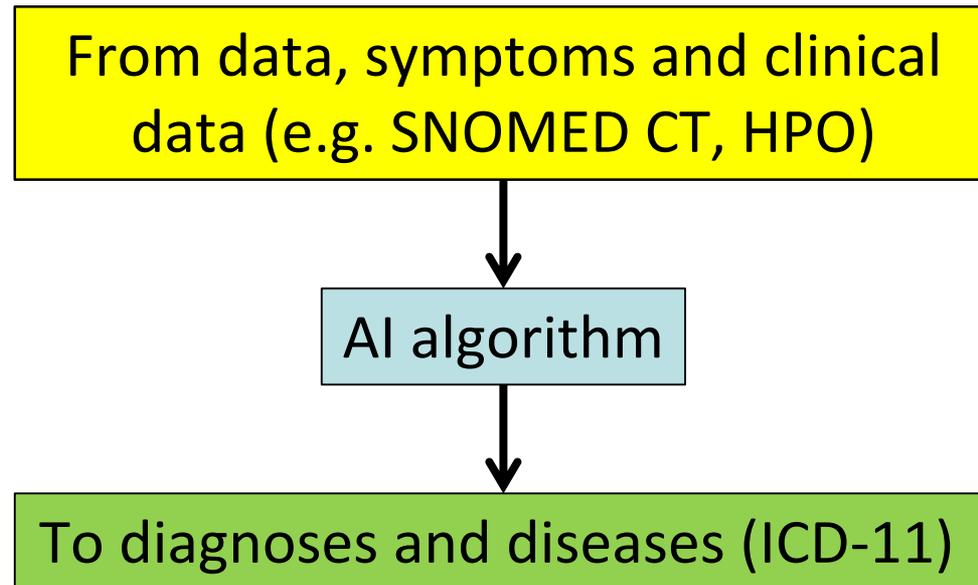
AI for Health

**A topic for medical practitioners
and engineers**

AI for Health

- Abstract View #1:

Mapping S2D



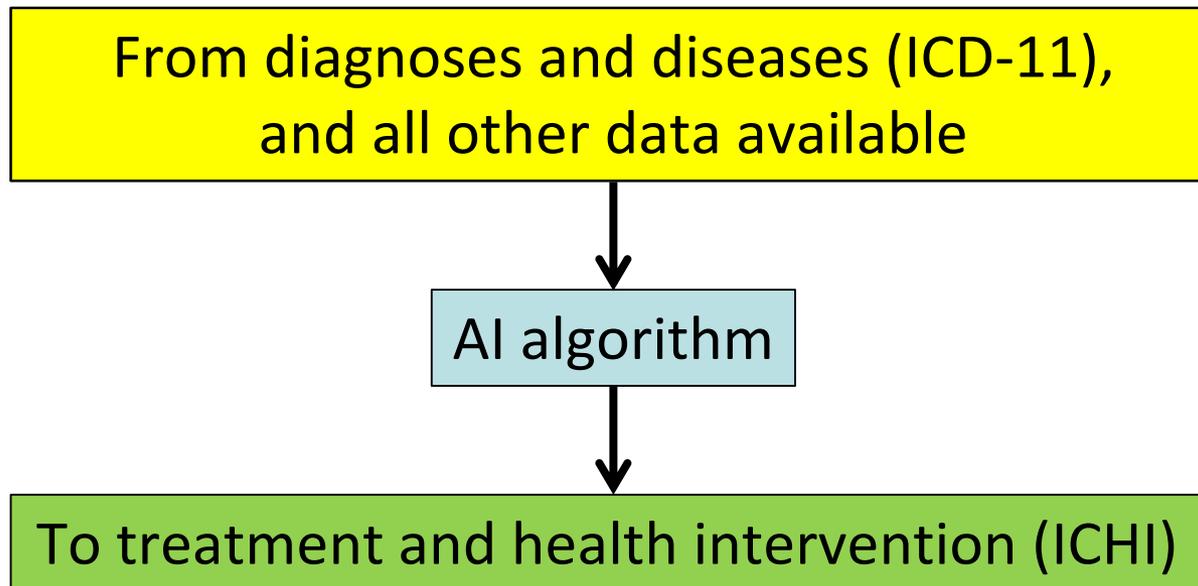
Possible Method for S2D Mapping

- Create training and test data sets
- Standardized set of input data (e.g. CRTs, living environment, symptoms and clinical data using formats such as SNOMED CT, HPO)
- Confirmed standardized diagnosis for each patient (ICD-11)
- Let the AI algorithms compete
- Create metric for comparisons including timing aspects and immediate suggestions for the patient/medical practitioner (e.g. MTS)

AI for Health

- Abstract View #2:

Mapping D2T



Focus Group

What's a Focus Group

- An open Platform for collaboration on new topics
- No Membership required
- Needs terms of reference, a management team, and a set of target deliverables
- Has secretariat collaboration support: website, mailing list
- Meets physically and/or electronically (remote participation)
- The work is self funded

Examples of ITU Focus Groups

Current

FG ML5G

Machine Learning for Future Networks including 5G

FG DLT

Application of Distributed Ledger Technology

FG DFC

Digital Currency including Digital Fiat Currency

FG DPM

Data Processing and Management to support IoT and Smart Cities & Communities

Recent

FG DFS

Digital Financial Services

FG IMT

Network aspects of IMT-2020

FG AC

Aviation Applications of Cloud Computing for Flight Data Monitoring



Proposed FG on AI + Health

- Many of the pitches in the AI + Health Session have common issues that benefit from a structure to share information, collaborate and deliver on their goals until the next AI Summit 2019. Some of the common issues include:
 - Use case description
 - Data collection, models, quality, etc.
 - Interfaces and architecture
 - Service and Business models
 - Open Source
 - Country deployment
 - Impact evaluation
 - Assessment and validation criteria and Framework
 - Algorithms enhancements

Feedback on proposal

- WHO supports and need further development of Terms of Reference, experts, and stakeholders (health and technology)
- Convert pitches into deliverables to the next Summit
- What is the funding model of the FG?
- Success KPI: go from idea to implementation/deployment
- Validation of source code