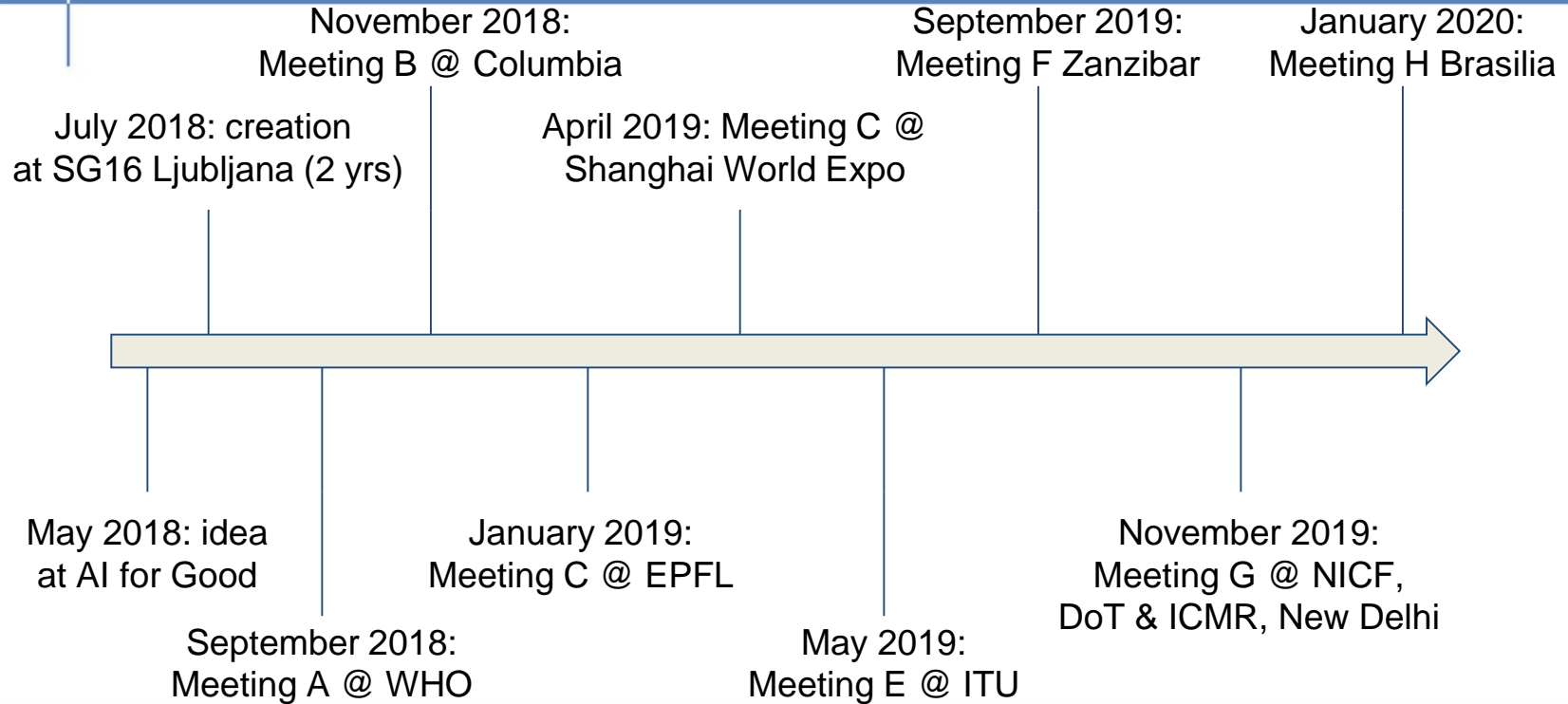


Focus Group on Artificial Intelligence for Health

Briefing 2019-10-11



Timeline



Status Quo

- Machine Learning can provide ubiquitous health diagnostics at negligible cost, non-invasive, high frequency - early stage detection can lead to lower cost of treatment and improved treatment outcomes
- Machine Learning competitions have elevated AI for health diagnostics to superhuman performance
- Medicine regulators (Food and Drug Administration, European Medicine Agency, CFDA, etc.) are equipped to certify tools that aid medics with analyses, not tools that perform analyses

Consequently:

- AI for health exists mostly as an academic exercise,
- models are not being certified for use in hospitals

Objective:

- Provide a trusted benchmark for AI4H, to enable certification by medicine regulators



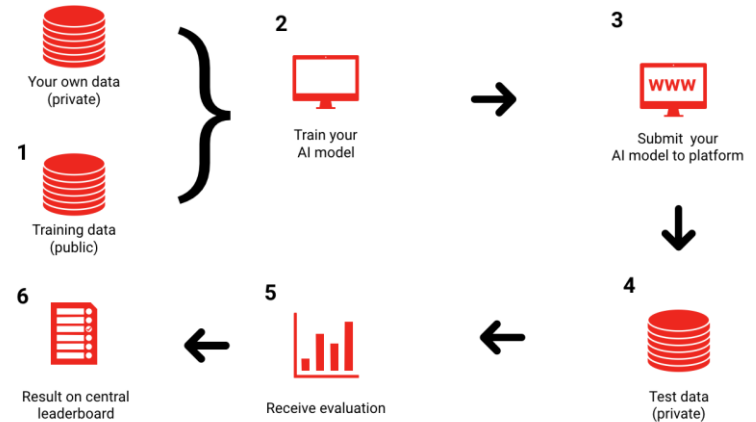
Approach

1. Gather data (from FG and elsewhere)
2. Train a model
3. Submit to FG
4. FG tests model on its undisclosed test data
5. Benchmark outputs metrics, e.g. in a binary classifier, the sensitivity and specificity (Type I and Type II error rates)

Different outcomes for different situations:

- false positives can be problematic in countries with strained healthcare systems
- Different melanin levels in skin and irises

Certification by medicine regulators based on benchmark output metrics



Leadership

Chair

- Thomas Wiegand, Fraunhofer HHI, Germany

Vice-Chairs:

- Ramesh Krishnamurthy, World Health Organization
- Marcel Salathe, EPFL, Switzerland
- Stephen Ibaraki, ACM, USA (added at meeting A)
- Sameer Pujari World Health Organization (added at meeting A)
- Naomi Lee, The Lancet, United Kingdom (added at meeting B)
- Shan Xu, CAICT, China (replaced Mind Dong at meeting C)

Secretary

- Simao - transitioning to Lara



Leadership cont.

Working Group Operations Chair

- Markus Wenzel, Fraunhofer HHI, Germany

Working Group Health Requirements

- Co-Chairs Laragh Gollogly (WHO) & Ramesh Krishnamurthy (WHO, FG VC)

Prospective Working Groups:

Working Group Regulation and Adoption

- Chair: WHO
- Vice-Chairs: Khair ElZarrad (FDA), Paolo Alcini (EMA) & other national regulators TBD

Working Group Public Health / Epidemiology - cf. WG RA

Leadership cont. II

Topic groups:

1. Cardiovascular disease risk prediction
2. Classifying autism through analysis of brain imagery
3. Dermatology
4. Falls among the elderly
5. Histopathology
6. Neuro-cognitive diseases
7. Ophthalmology (retinal imaging diagnostics)
8. Psychiatry
9. Snakebite and snake identification
10. Symptom assessment
11. Tuberculosis

Topic groups have can one or more drivers and can have multiple benchmarks



Cf. FG-DFI / FIGI: Industry vertical philanthropic funders:

- Bill & Melinda Gates foundation
- Botnar foundation - adolescent health in urban areas in (L)MICs
- Wellcome Trust

Insights from former funder Karin Jestin @ Lausanne workshop

- [presentation](#)
- [recording](#)

There is a kind of « division of labor » in the giving landscape

- **Crowd funding** is emotional, convinced by an idea / a story it wishes to see come through, not asking for much return. Family seed funding and some individual donors will function the same way.

=> best suited for early idea maturing ?

- **Philanthropic funding** is usually more strategic. It is quite rapid in decision-making, relatively un-bureaucratic and can afford to take risks.

=> best suited for early piloting phases ?

- **Public funding** applications are usually complex, lengthy and cumbersome. Grant volumes can be significant though.

=> best suited for replication ?



Thank You

Annex: more info

- Web: <https://www.itu.int/go/fgai4h>
- Mailing: <https://www.itu.int/go/fgai4h/lists>
- Whitepaper: https://staging.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf
- ITU News: <https://news.itu.int/artificial-intelligence-health-call-proposals/>
- ITU News: <https://news.itu.int/artificial-intelligence-health-new-use-cases/>
- Interviews: <https://youtu.be/k69psu5o5tk>
- Forbes: <https://forbes.com/sites/cognitiveworld/2018/10/04/9t-global-healthcare-strengthened-by-itu-focus-group-ai-for-health/>