Invitation to the ITU/WHO Focus Group Artificial Intelligence for Health (FG-AI4H) Workshop

Artificial Intelligence for Health
Standardized Assessment Framework
Handling and Assessment Methods

January 8 – 9, 2020

hosted by
Fraunhofer Institute for Telecommunications
Einsteinufer 37
10587 Berlin
GERMANY

Background on ITU/WHO FG-AI4H

Health technologies require careful evaluation under consideration of both technical and health-related aspects, prior to wider usage. Several factors complicate this evaluation and, thus, the deployment of artificial intelligence (AI) solutions in the health context. Therefore, the International Telecommunication Union (ITU) and the World Health Organization (WHO) have initiated an international standard-seeking effort to address these challenges by creating a joint Focus Group on Artificial Intelligence for Health (FG-AI4H). The ITU and the WHO are two specialized agencies of the United Nations authorized for creating global standards in the fields of information technology and health, respectively. The mandate of the ITU/WHO focus group is to undertake crucial, exploratory steps towards evaluation standards that are applicable on a global scale. FG-AI4H has begun working towards establishing a rigorous evaluation process for AI4H solutions, under the supervision of ITU and WHO, with a global community of experts from health, machine learning, AI, both from academia and industry, and regulation.

Detailed information on the work FG-AI4H is doing can be found on the website, a commentary in The Lancet and the following white paper. Furthermore, all documentation can be accessed via the online collaboration system (a free ITU account is needed; see instructions for help).

Purpose of the Workshop

The mandate of the ITU/WHO FG-AI4H is to establish a standardized assessment framework for the evaluation of AI-based methods for health, diagnosis, triage or treatment decisions. The purpose of this workshop is to take the next technical steps in (a) setting up a sandbox for the assessment framework and (b) defining testing procedures for quality assessment of data sets and AI models. Furthermore, the workshop is an opportunity to learn more about FG-AI4H as well as the people and institutions that are involved in its day-to-day work.

We are looking forward to your expertise and participation in moving FG-AI4H forward towards creating a standardized assessment framework.

Audience

This workshop is targeted at professionals either specializing or working on the intersections of the health, ICTs and AI domains. This may include individuals from academia (postdocs, PhD students, professors) or industry (developers, consultants, doctors, healthcare workers, freelancers) alike. Pleae note this is a non-exhaustive list. In case you do not fall into these perimeters but have a strong interest to contribute – please do reach out to us. Participation and contribution is possible in different capacities.

Your Role in the Workshop

We require your input and expertise in a capacity of your choosing. This can, for example, be giving a presentation, joining of the activities during the discussion, drafting the documentation of the workshop meeting that feeds into the standardization document, participating in specification and implementation of testing algorithms and technical infrastructure. Furthermore, there are opportunities to become chair/co-chair of a FG-AI4H Working Group. Finally, if you think you may contribute something interesting that does not fit any of the categories outlined above do let us know. We are open for suggestions.

Activities at the Workshop

Please note that some activities may not be completed during the workshop. Work on these activities continues in virtual meetings and successive physical meetings. This is the normal process for our Focus Group: most of the work is done through virtual meetings to be economical with emissions and time budgets. Physical meetings are organized regularly to facilitate interactions that are hard to replicate online as well as providing a point of entry for new members.

The following activities and topics will be dealt with at the upcoming workshop:

1. Set up the sandbox for the assessment platform based on an existing software library
   Comment: This means we will start to set up the existing software for a benchmarking platform on a server

2. Collect technical expertise and future requirements for the platform with respect to
   (a) Data processing management
   (b) Encryption
   (c) Data set splitting

3. Collect technical expertise and requirements for methods and tests with respect to
   (a) Assessment of test data quality, in particular
       i. Completeness
       ii. Heterogeneity and varying quality grades of measurements
       iii. Robustness as a property of data
       iv. Characteristics of data sets, summary statistics, "data sheets for data sets"
       v. Bias
       vi. Fairness
       vii. Integrity
       viii. Reproducibility of data collection procedure
   (b) Assessment of AI model quality, in particular safety and reliability dimensions such as
       i. Robustness
       ii. Generalizability
       iii. Uncertainty quantification
       iv. Explainability

Please indicate in the [online form](#) which activities you are most interested in and whether you would be able to give a short presentation on the aspects that, from your perspective, are important to consider with respect to the quality assessment of AI for health applications and data sets.

Structure of the Workshop

The preliminary structure of the workshop is detailed below. Possible changes are contingent on the final pool of participants as well as your suggestions. Four different phases are planned for dealing with the various activities. These phases help to make sure the workshop moves along in a constructive fashion. The different phases as well as the structure of the workshop are explained and visualized below.

Phases

	Implementation	*Working on the implementation of algorithms and technical infrastructure*
	Collect problem ideas	*Collection of suggestions, questions and issues with respect to the topic that can be expressed in discussion panels and invited as well as impromptu presentations*
	Collect solution ideas	*Collection of ideas for solutions in working groups on the problem ideas collected previously*
	Documentation	*Documentation of technical progress as well as important suggestions, questions and issues raised during the workshop for subsequent preparation into an output document by the workshop participants.*

Activities		Day 1		Day 2	
	1				
	2.a				
	2.b				
	2.c				
	3.a.i				
	3.a.ii				
	3.a.iii				
	3.a.iv				
	3.a.v				
	3.a.vi				
	3.a.vii				
	3.a.viii				
	3.b.i				
	3.b.ii				
	3.b.iii				
	3.b.iv				

Please note that some sessions to work on the different activities may take place in parallel. The final plan will be made available in the week prior to the workshop.

Contact and Questions

For contact and questions do not hesitate to reach out to the workshop organizers

Luis Oala
(Quality assessment topics, i.e. Activity 3.)
luis.oala@hhi.fraunhofer.de

Marc Lecoultre
(Technical infrastructure topics, i.e. Activities 1. and 2.)
ml@mllab.ai

Note on remuneration: All members of ITU/WHO FG-AI4H donate their time and expertise towards the development of the standardized assessment framework for the evaluation of AI-based methods for health. There is no financial compensation.