



**AI for Health**  
ITU-WHO Focus Group

2023/03/21

# **2<sup>nd</sup> TG DENTAL SYMPOSIUM**

**Mascot Lounge, Stratton Student Center, 84  
Massachusetts Ave, Cambridge, MA 02139, USA**

**[HTTPS://REMOTE.ITU.INT](https://remote.itu.int)**

[itu.int/go/fgai4h](https://itu.int/go/fgai4h)

Urgency contact  
[brinz.janet@gmail.com](mailto:brinz.janet@gmail.com)



World Health  
Organization



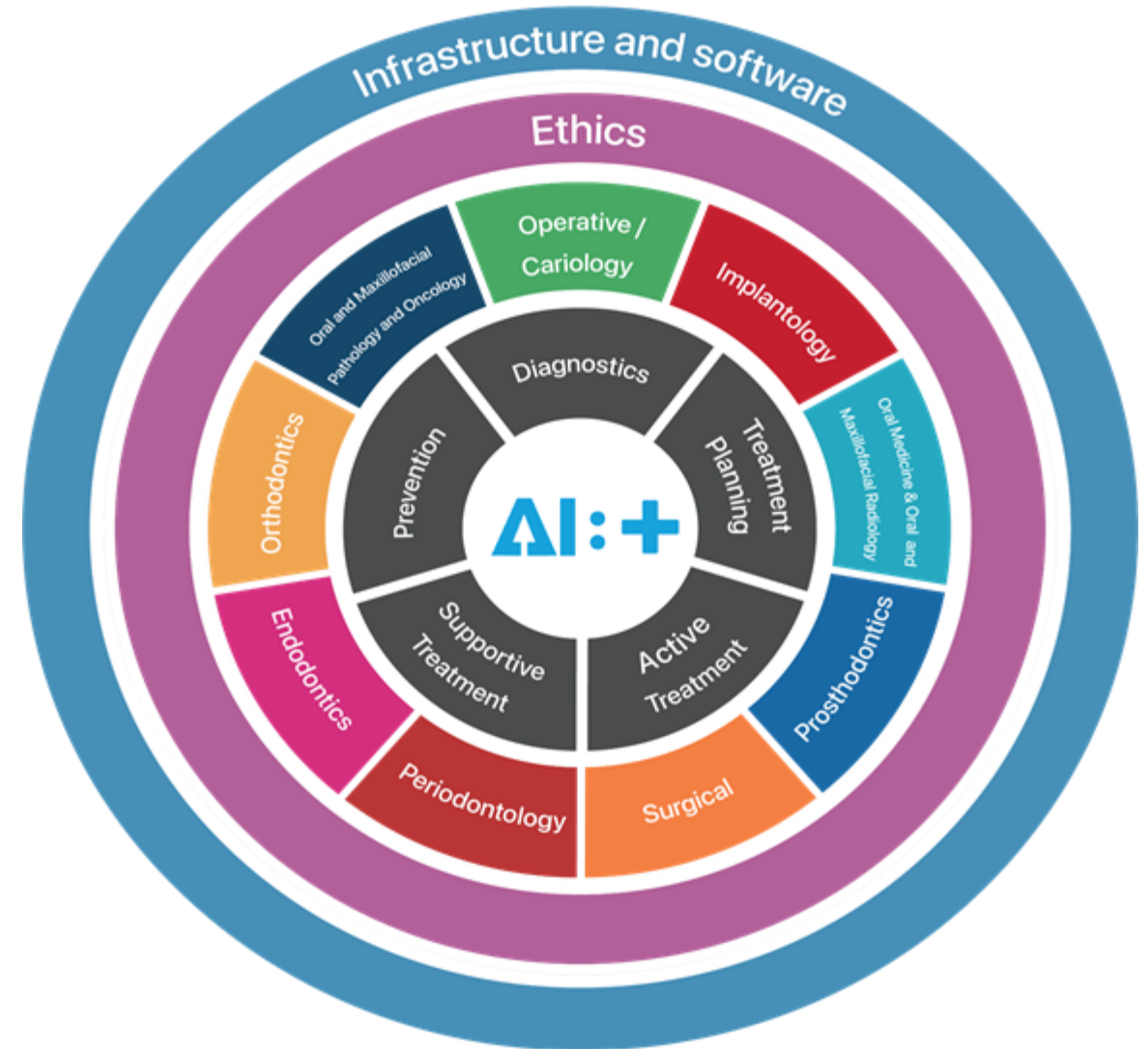


# Who are we?

## Topic group: Dental Diagnostics and Digital Dentistry

A topic group is a community of stakeholders from the medical and AI communities with a shared interest in dentistry. The objectives of the topic group is manifold:

- to provide a forum for **open communication** among various stakeholders,
- to agree upon the **benchmarking tasks** of this topic and scoring metrics,
- to facilitate **the collection of high-quality labelled test data** from different sources,
- to clarify the input and output **format of the test data**,
- to define and set-up the **technical benchmarking infrastructure**



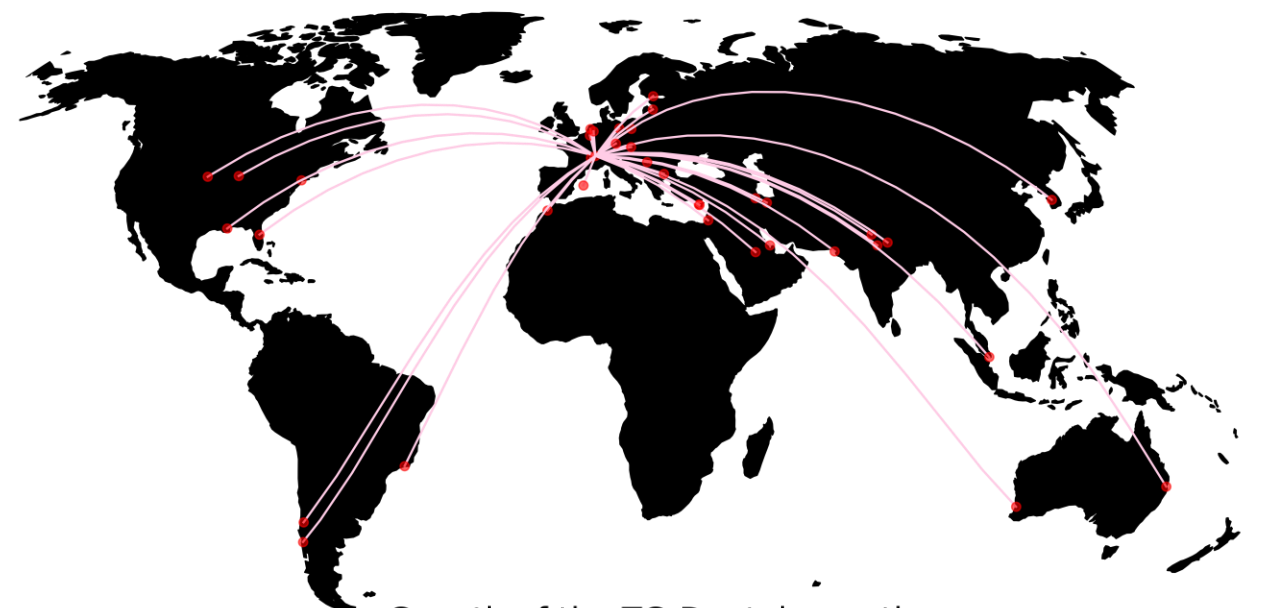
# Who are we?

57 members / 23 countries / 6 continents

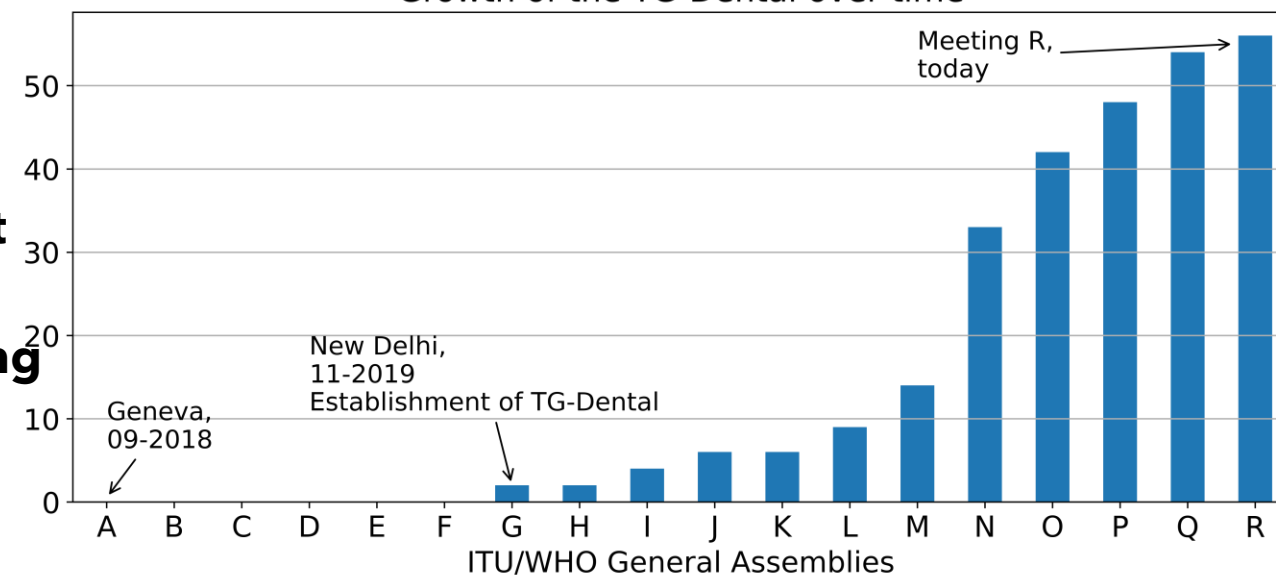
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Growth of the TG-Dental over time



# What are we doing?

- Networking and exchange
- Research and publications
- Data annotations and proof of concepts
- Promotion of best practices and the development of standards for benchmarking

		INTERNATIONAL TELECOMMUNICATION UNION	<b>FG-AI4H-R-033</b>
<b>TELECOMMUNICATION STANDARDIZATION SECTOR</b>		<b>ITU-T Focus Group on AI for Health</b>	
STUDY PERIOD 2022-2024		<b>Original: English</b>	
<b>WG(s):</b>	Plenary	Cambridge, 21-24 March 2023	
<b>DOCUMENT</b>			
<b>Source:</b>	TG-Dental		
<b>Title:</b>	Proposed new output document - Artificial intelligence for oral and dental healthcare: Core education curriculum		
<b>Contact:</b>	Falk Schwendicke Charité – Universitätsmedizin Berlin Germany	Tel: +49 30 450 62556 E-mail: <a href="mailto:falk.schwendicke@charite.de">falk.schwendicke@charite.de</a>	
<b>Abstract:</b>	Following the publication of TG-Dental Output 1: <a href="#">Artificial intelligence in dental research: A checklist for authors and reviewers</a> , this contributions <b>proposes</b> that the document hereinafter, which was published in Elsevier's Journal of Dentistry in Nov. 2022, also be <b>published as an output document</b> from the FG-AI4H, as done earlier for the. This paper identifies core elements necessary for an education curriculum on artificial intelligence for oral and dental healthcare.		

International Telecommunication Union	
<b>ITU-T</b> TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU	<b>FG-AI4H Output</b>  (20 August 2021)
<b>TG-Dental Output 1</b> <b>Artificial intelligence in dental research: A checklist for authors and reviewers</b>	
2021	

# Get involved!

## Contact

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- Dr Joachim Krois, dentalXrai, Germany  
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## CfTGP (TG-Dental): R-010-A02

### ITU/WHO Focus Group on artificial intelligence for health (FG-AI4H)

#### Call for Topic Group Participation: Dental Diagnostics and Digital Dentistry

The International Telecommunication Union (ITU)/World Health Organization (WHO) Focus Group on "Artificial Intelligence for Health" (FG-AI4H; <https://itu.int/go/fgai4h>) seeks engagement from members of the medical and artificial intelligence (AI) communities (including clinicians, technologists, entrepreneurs, potential benchmarking data providers, machine learning experts, software developers, researchers, regulators, policy-makers, companies/institutions, and field experts) with a vested interest in shaping the benchmarking process of dental diagnostics and digital dentistry.

#### 1 About FG-AI4H

Over the past decade, considerable resources have been allocated to exploring the use of AI for health, which has revealed an immense potential. Yet, due to the complexity of AI models, it is difficult to understand their strengths, weaknesses, and limitations. If the technology is poorly designed or the underlying training data are biased or incomplete, errors or problematic results can occur. AI technology can only be used with complete confidence if it has been quality controlled through a rigorous evaluation in a standardized way. Towards developing this standard assessment framework of AI for health, the ITU has established FG-AI4H in partnership with the WHO.

Thus far, FG-AI4H has established several topic groups, including AI and cardiovascular disease risk prediction, child growth monitoring, dermatology, falls among the elderly, histopathology, neuro-cognitive diseases, ophthalmology (retinal imaging diagnostics), psychiatry, radiotherapy, snakebite and snake identification, symptom assessment, tuberculosis, volumetric chest computed tomography, and dental diagnostics and digital dentistry.

Each topic group agrees upon representative benchmarking tasks in a pragmatic, best-practice approach, which can later be scaled and expanded to similar tasks. Every benchmarking task should address a health problem of relevance (e.g. impacting a large and diverse part of the global population or challenging to treat) and for which AI technology would provide a tangible improvement relative to the current practice (e.g. better care, results, and/or cost/time effectiveness).

For a rigorous and sound evaluation, undisclosed test data sets must be available (or have to be collected) for each task. All data must be of high quality and compliant with ethical and legal standards. In addition, the data must originate from a variety of sources so that it can be determined whether an AI algorithm can generalize across different conditions, locations, or settings (e.g. across different people, hospitals, and/or measurement devices). The format/properties of the data serving as input to the AI and of the output expected from the AI, as well as the benchmarking metrics are agreed upon and specified by the topic group.

Finally, the AI-to-be-evaluated will be benchmarked with the undisclosed test data on FG-AI4H computing infrastructure. Here, the AI will process single samples of the undisclosed test data set and predict output variables, which will be compared with the "ground truth." The results of the benchmarking will be provided to the AI developers and will appear on a (potentially anonymized) leaderboard.

#### 2 Topic group: Dental Diagnostics and Digital Dentistry

A topic group is a community of stakeholders from the medical and AI communities with a shared interest in a topic. The objectives of the topic groups are manifold:

1. to provide a forum for open communication among various stakeholders,

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**ITU** **World Health Organization**

**FG-AI4H**

The ITU/WHO Focus Group on Artificial Intelligence for Health (FG-AI4H) works in partnership with the World Health Organization (WHO) to establish a standardized assessment framework for the evaluation of AI-based methods for health, diagnosis, triage or treatment decisions. Participation in the FG-AI4H is free of charge and open to all. The group was established by ITU-T Study Group 16 at its meeting in Ljubljana, Slovenia, 9-20 July 2018.

The FG scope and general process are described in a [commentary in The Lancet](#) and a [white paper](#). The documentation of all previous meetings can be found on the [collaboration site](#) (free ITU account needed; see [instructions](#) for help). Learn more about the FG and how to get involved in the [onboarding document](#).

[Terms of reference >](#) [Parent group > ITU-T Study Group 16](#)

**Topic Groups**

Topic groups (TGs) investigate use cases within specific health domains with corresponding AI/ML tasks. Currently there are 24 groups, three of which are starting their activities. [More >](#)

**Working Groups**

Working groups (WGs) consider crosscutting subject matters that affect a specific aspect of an AI health application. [More >](#)

**Open Code Initiative**

The Open Code Initiative is implementing the digital building blocks (six software packages) that compose the *FG-AI4H Assessment Platform*. The assessment platform, which can be distinguished from AI "challenge" platforms through its consideration of regulatory guidelines and the needs of other AI for health stakeholders, supports the end-to-end assessment of AI for health algorithms. [More > OCI development site](#) | [Terms of reference](#)

**Ad-hoc Group on Digital Technologies for COVID Health Emergencies**

The AHG-DT4HE reviews the role of AI (and other digital technologies) in combating COVID-19 throughout an epidemic's life cycle. Through this case study, we will learn how to best leverage digital technologies to successfully manage future health emergencies.

**Key current output documents**

- FG-AI4H Whitepaper
- Deliverable 1: Ethics and governance of AI for health <sup>new</sup>
- O-102: Updated call for proposals: use cases, benchmarking, and data
- F-103: Updated FG-AI4H data acceptance and handling policy
- C-104: Thematic classification scheme
- F-105: ToRs for the WG-Experts and call for experts
  - Application form; Conflict of interest form
- F-106: Guidelines on FG-AI4H online collaboration tools
- M-107: Onboarding FG-AI4H document
- M-200: Updated list of FG-AI4H deliverables
- TG-Dental Output 1: Artificial intelligence in dental research: A checklist for authors and reviewers <sup>new</sup>
- AHG-DT4HE Output 1: Guidance on digital technologies for COVID health emergency

**Meetings and Related Events** **Focus Group News** **Focus Group Videos**

**Workshop and Meeting "P"**  
University of Helsinki, Finland,  
19-22 Sep. 2022

- [Register](#) (required - deadline 5 Sep. on-site participation, 17 Sep online participation). Use your free ITU account, [instructions here](#) and indicate whether attending in-person or remotely
- [Logistics](#) (practical information for the participants)
- [Travel grant eligibility and application](#) (deadline 15 Aug)

[Attend and contribute... \(click to expand\)](#)

**Future meetings:**

- Q: Winter 2022 (TBC)

[All meetings >](#)

**AI for Health Webinar Series**

- 22 June 2022 at 15:00 CEST with John Brownstein (Boston Children's Hospital)
- 6 July 2022 at 17:00 CEST with Stevie Chancellor (University of Minnesota)
- 7 September 2022 at 17:00 CEST with Enzo Ferrante (Argentina's National Research Council (CONICET)), Maia Hightower (University of Utah)
- 8 November 2022 at 15:00 CET with Karandeep Singh (University of Michigan)
- [See past sessions here](#)

**Onboarding document**

account needed - instructions

Onboarding document

Temporary documents | Statements

View and join the available general ITG mailing lists (ITU account needed): Experts | Step-by-step

Available mailing lists:

ITU INTERVIEW



# Timetable (EDT)

MIT Mascot Lounge, Stratton Building	AI for Dentistry Symposium	
Time (EDT, UTC -4)	Session/Speaker	Title
08:00-08:30	Entry & Registration	
08:30-08:40	Session I - 10 mins	Opening session
	Joachim Krois (dentalxr.ai)	Introduction
08:40-10:20	Session II - 100 mins	
40 min	Falk Schwendicke (Charité&Dentalxr.ai) <i>Keynote</i> Q&A	AI in dentistry: What shall we focus on in research?
15 min	Johannes Tanne (Johannes Tanne Consulting)	Data sharing for AI in dentistry
7 min	Olga Tryfonos (ACTA, Netherlands)	How can we review the availability of scientific evidence of the commercially available artificial intelligence (AI) products?
8 min	Parul Khare (SDS Sharda University, India)	Machine learning for classification of oral epithelial dysplasia and diagnosis of squamous cell carcinoma - a progress report
15 min	Lubaina T. Arsiwala-Scheppach (Charité Universitätsmedizin Berlin)	Gaze pattern analysis and AI in dentistry
15 min	Fahad Umer (Aga Khan University Hospital)	AI research in a resource-capped work environment a case study of impediments and recommendations
10:20-11:05	Session III (Part I) - 45 mins	
	Scott Doyle (University at Buffalo, State University of New York)	SUNYCell: A Collaborative Computational Pathology Project Framework
11:05-11:25	Coffee break - 20 mins	
11:25-12:40	Session III (Part II) - 75 mins	
	Scott Doyle (University at Buffalo, State University of New York)	SUNYCell: A Collaborative Computational Pathology Project Framework
12:40-13:45	Lunch break - 65 mins	
13:45-15:30	Session IV - 75 mins	
15 min	Martha Büttner (Charité Universitätsmedizin Berlin)	Overcoming current challenges in dental deep learning
15 min	Rata Rokhshad (Department of Medicine, Boston University Medical Center)	AI in pediatric dentistry
15 min	Janet Brinz (LMU Munich)	AI based software for dentistry - a brief market overview
15 min	Yunpeng Li (University of Surrey, UK)	Crowdsourcing for AI-assisted dental disease detection
15 min	Balazs Feher (Harvard School of Dental Medicine )	Prediction of post-traumatic neuropathy following impacted mandibular third molar removal based on dental macroanatomy using machine learning
15 min	Manal Hamdan (Marquette University School of Dentistry)	The effect of a deep-learning tool on dentist's performance in detecting apical radiolucencies
15 min	Nielsen Pereira	How to determine the sample-size for machine learning in dental imaging
15:30-15:50	Closing & Coffee	

## Q&A

- If time permits after each presentation
- Otherwise, panel discussion and/or during coffee breaks

## How?

- [in person] Raise your hand
- [remote] Raise your virtual hand
- [all] Write down the question in the zoom chat and we try to accommodate



**ITU**Tech



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