

Google for Startups

Startup School: HealthTech

Google's open models for health AI development

Daniel Golden

Software Engineer, Google Research

September 23, 2026

Google's Open Health AI Models

Health AI Developer Foundations
MedGemma and more



Google Health AI Mission:

Catalyzing adoption of human-centered AI in health

```
graph TD; A[Google Health AI Mission: Catalyzing adoption of human-centered AI in health] --> B[Demonstrate how to build safe and effective AI:]; A --> C[Enable others by making it easy to build AI for their use-cases:];
```

Demonstrate how to build safe and effective AI:

- Publications
- Prospective trials

HAI-DEF

Enable others by making it easy to build AI for their use-cases:

- Pre-trained models
- Tools to adapt the models for diverse set of use-cases

What is HAI-DEF?

Health AI Developer Foundations (HAI-DEF) offers **free open-weight models** and **open-source companion tools**.

Designed with an [enabling license](#) to help developers build AI-enabled healthcare applications.

Google for Startups

Accelerating AI development in healthcare

AI building blocks for creating next-generation healthcare solutions.

HAI-DEF (Health AI Developer Foundations) offers free open-weight models and open-source companion tools with an [enabling license](#) to help developers build AI-enabled healthcare applications.



Pre-trained open-weight models

Access pre-trained models to build AI applications, with less data and compute resources.



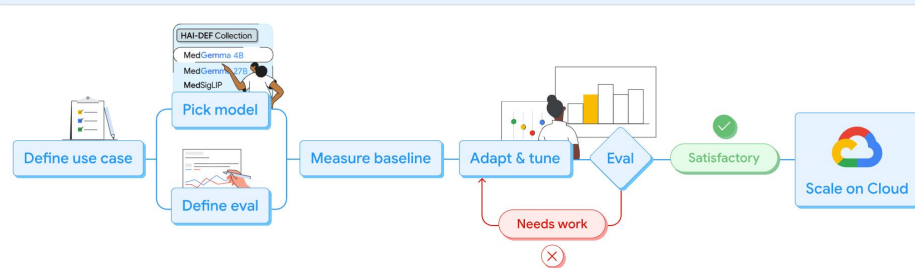
Customizable for most applications

HAI-DEF model weights are open, so you can run them wherever you'd like and fine-tune them with your data for your tasks.



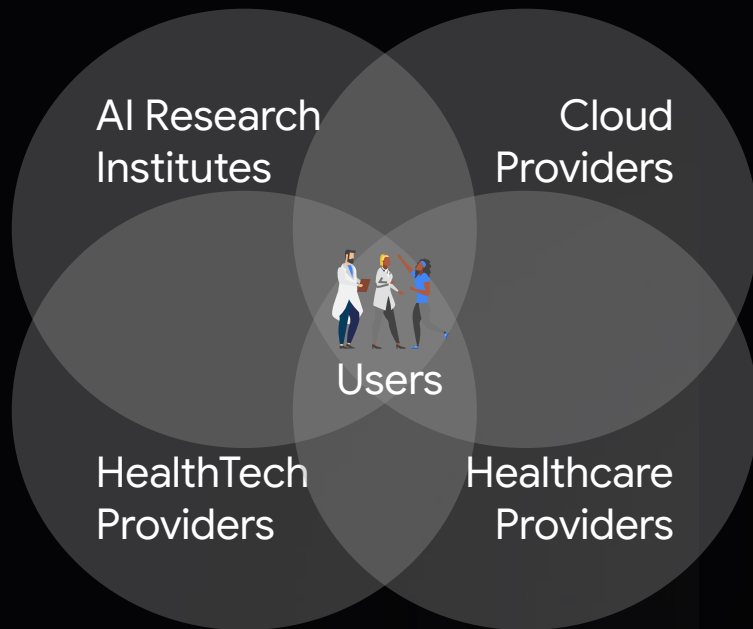
Integrated with Google Cloud

We make it easy to deploy HAI-DEF models on GCP as scalable services with native integration to [Vertex AI](#) and [Cloud Healthcare API](#).



Explore more goo.gle/hai-def

Philosophy of HAI-DEF



No single organization can put effective AI in the hands of patients and clinicians.



Collaboration!

We see clinical AI more of an organizational challenge than technical.

By making our models open and portable, we actively break down the organizational boundaries.

The growing catalog at a glance

MedGemma - Medical image & text comprehension (generative)

MedASR - Medical speech-to-text

MedSigLIP - MedGemma's vision encoder

TxGemma - Therapeutics comprehension (generative)

 **HeAR** (lung acoustics) encoder

Legacy Image Encoders



Path Foundation



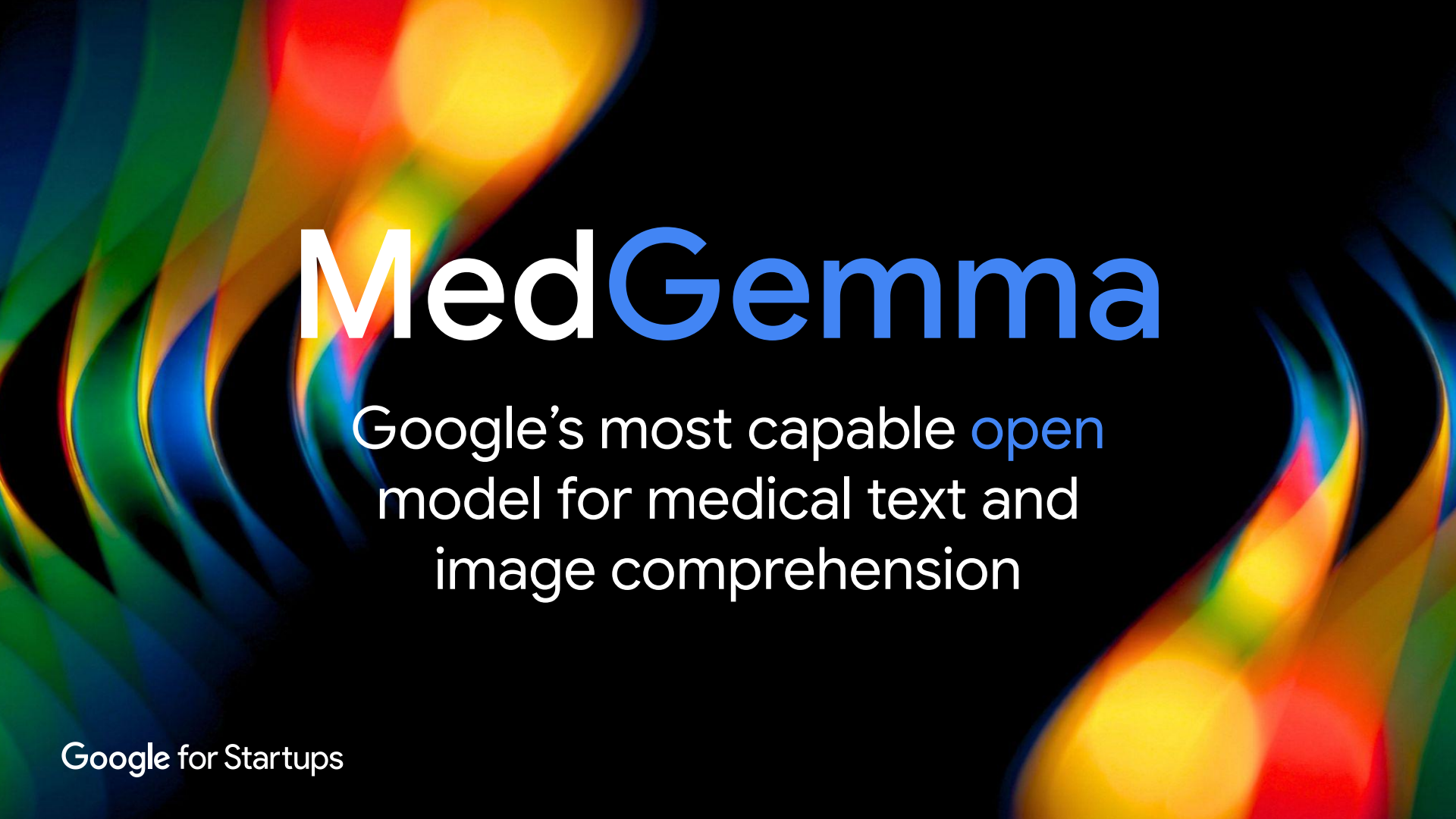
CT Foundation* (API only)



Derm Foundation



CXR Foundation



MedGemma

Google's most capable **open**
model for medical text and
image comprehension

MedGemma Collection

Multimodal generative models

MedGemma 1.5 4B

MedGemma 27B

Image encoder

MedSigLIP 0.4B

2D imaging



Pathology



Dermatology



Ophthalmology



Radiology

Text



Medical text
and records

Speech via
MedASR



Speech

Advanced imaging



Multi-time point
radiology



3D radiology



Whole slide
pathology

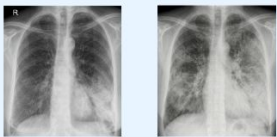


Anatomy
localization



MedGemma is a solid starting point

Prompt



Compare the two above images. Is the pneumonia unchanged, worsened, or improved in the second image compared to the first image?

Image source: https://commons.wikimedia.org/wiki/File:03-01-Infiltrat_Ausgang.png. Follow-up image generated using Gemini.

New

MedGemma 1.5

AI Response

Based on the provided chest X-rays, **the pneumonia appears to be worsened** in the second image compared to the first image. The second image shows more extensive and dense opacities in the left lung, indicating a greater degree of consolidation. The right lung also shows some increased opacities, but to a lesser extent.

AI response evaluation by board-certified thoracic radiologist



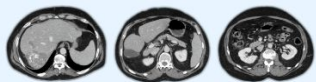
- ✓ I agree the pneumonia has worsened on the second image compared to the first image. I agree with the reasoning and description of the lung opacities.
- ✗ However, a region of relative lucency in the mid right lung, which could represent either cavitation or merely a region of lung spared by pneumonia, is not mentioned.



Fine-tuning may improve results

MedGemma is a solid starting point

Prompt



You are analyzing a contiguous block of CT slices from the abdomen. The patient is being evaluated for potential liver tumors. Based on the visual evidence in the slices provided above, is there evidence of a tumor in the liver? You must first explain your reasoning, specifically noting any suspicious features.

New

MedGemma 1.5

AI Response

Based on the provided CT images, **there is evidence of a large, irregular mass in the right lobe of the liver.** This mass exhibits significant heterogeneous enhancement, with areas of both hyperdensity and hypodensity. The mass appears to be causing some distortion of the liver parenchyma and may be associated with some degree of intrahepatic biliary dilation.

AI response evaluation by board-certified thoracic radiologist



- ✓ I agree there is a large tumor in the right hepatic lobe. I agree with the characterization of its heterogeneity, enhancement characteristics, and associated liver parenchymal distortion.
- ✗ However, no substantial intrahepatic biliary ductal dilation is apparent.

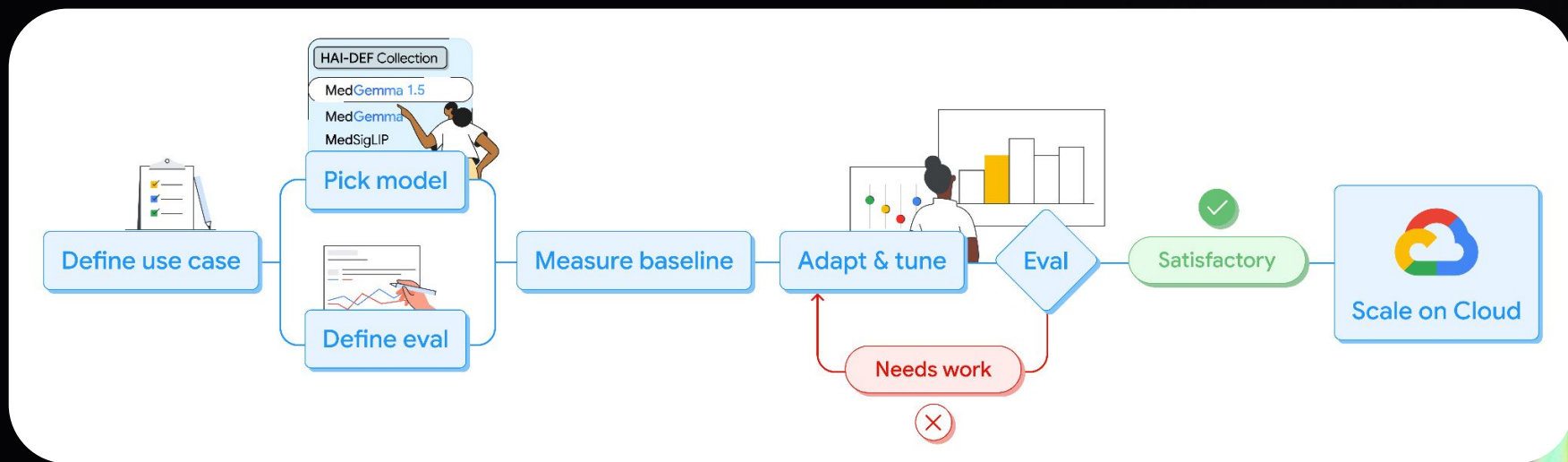


Fine-tuning may improve results

Image source: <https://www.cancerimagingarchive.net/collection/colorectal-liver-metastases>

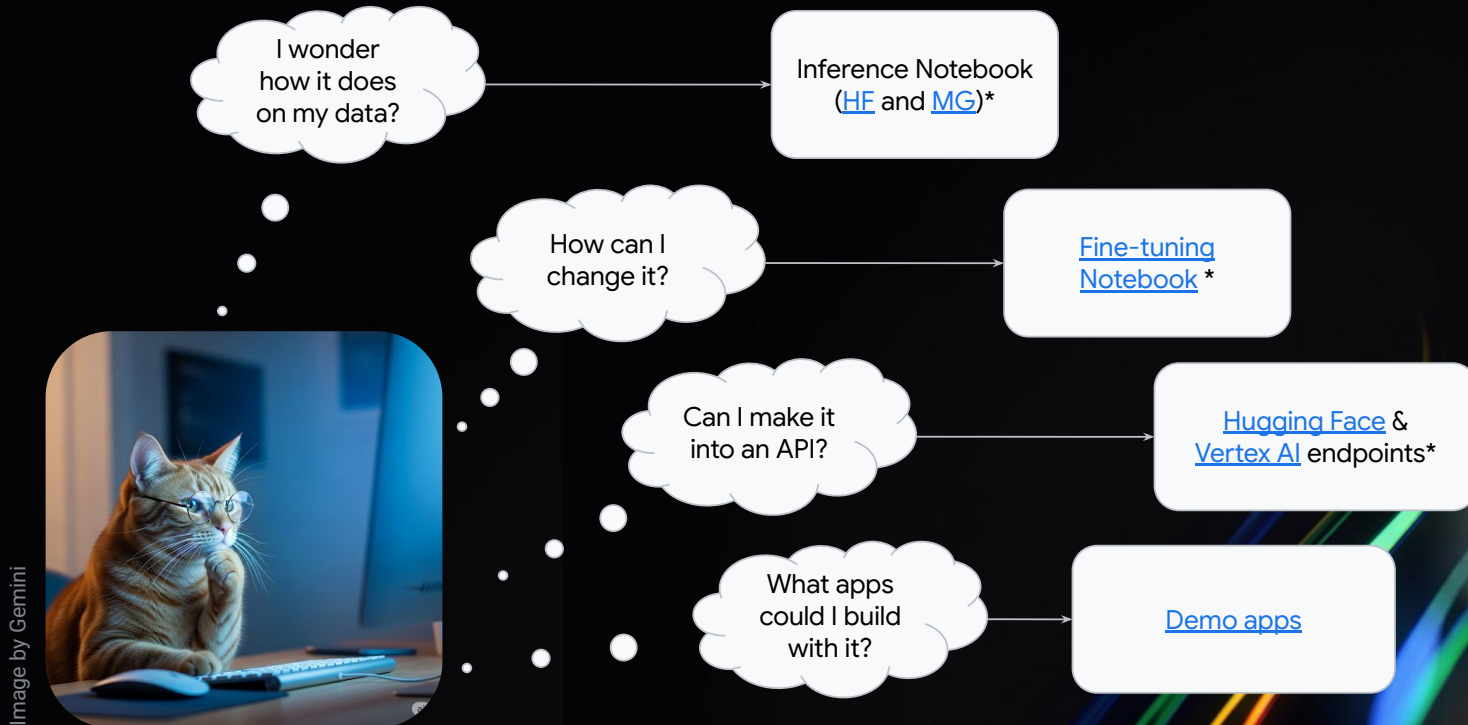
* Prompt is edited for succinctness

Extensible foundation models, not finished products!



Explore more: goo.gle/hai-def

We enable you, so you DIY



Choosing the right model: Gemini vs MedGemma

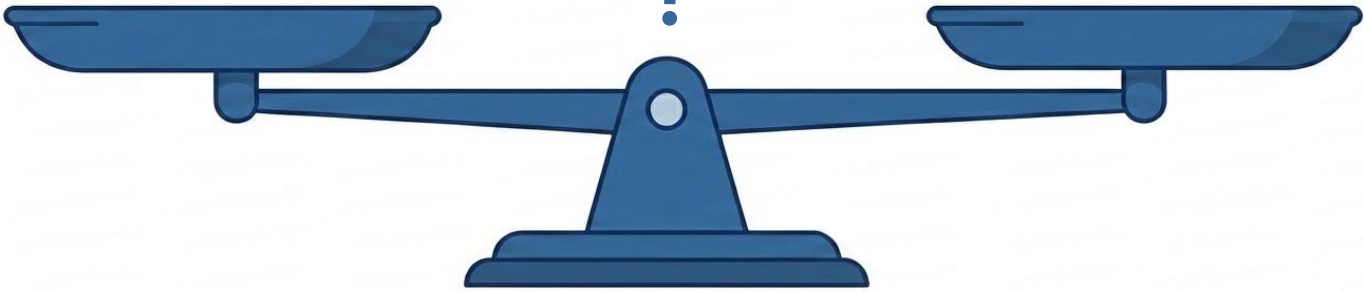
Convenience

Closed Models like
Gemini

Control

Open Models like
MedGemma

?



MedGemma vs Gemini

MedGemma is ideal for applications that have any of the following requirements:

- Where IP ownership of the model is a necessity.
- Working on medical imaging use cases where MedGemma has SoTA performance.
- Need substantial adaptation for desired performance.
- Require medical device regulatory approval.
- Data needs to stay on device or within private GCP environment.
- Needs to be run offline in low resource environments with unreliable Internet.
- High sensitivity to inference costs .

For many situations it may make sense to orchestrate Gemini and MedGemma in agentic workflows.



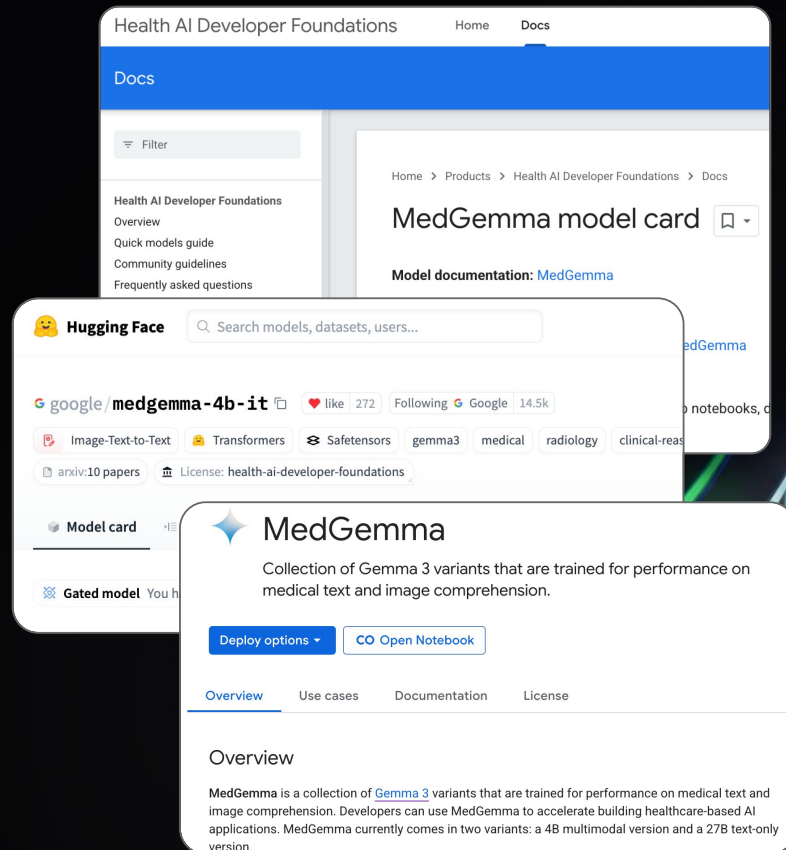
Resources

MedGemma links

- [MedGemma in GemmaVerse](#)
- [MedGemma in HAI-DEF](#)
- [Hugging Face Collection](#)
- [Model Garden](#)
- [Model Card](#)
- [Tutorial notebooks](#)
- [Technical report](#)

Model cards

- Source of truth is in goo.gl/hai-def
- The same information duplicated or linked everywhere you discover the model (i.e. Hugging Face, Model Garden, Ollama, etc.)
- Model cards include:
 - Description of training and evaluation datasets
 - Performance results
 - Intended use statement
 - Known limitations



Technical reports

- Details of model development
- Deep dive into data handling
- Comprehensive benchmark evaluations
- Statistical analysis

Google Research and Google DeepMind

2026-4-8

MedGemma Technical Report

Google Research and Google DeepMind ¹

Artificial intelligence (AI) has significant potential in healthcare applications, but its training and deployment are challenging due to healthcare's diverse data, complex spectrum of possible tasks, and the need to preserve privacy. Foundation models that perform well on various medical tasks and require less development of AI for healthcare applications. In collection of medical vision-language foundation

Google Research and Google DeepMind

2026-5-5

MedGemma 1.5 Technical Report

Google Research and Google DeepMind ¹

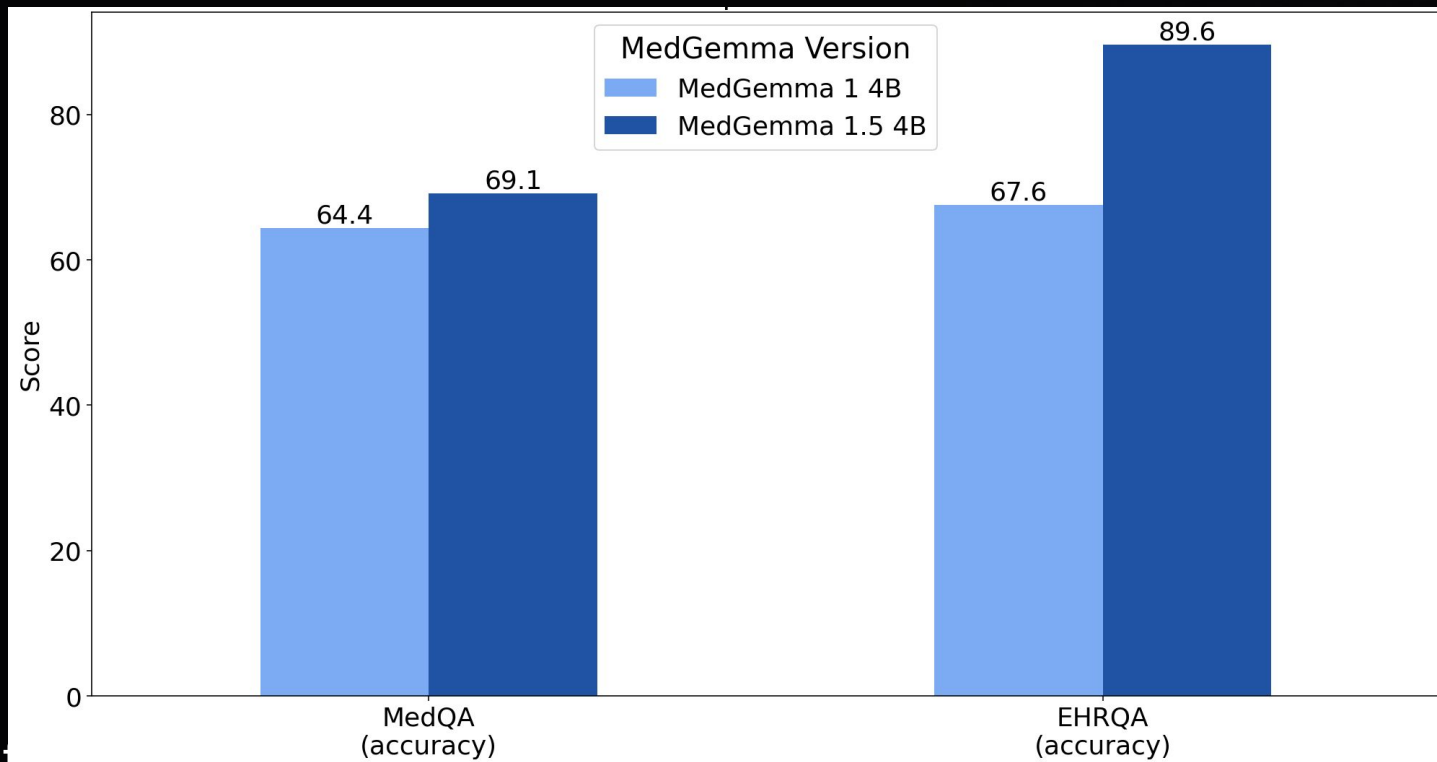
We introduce MedGemma 1.5 4B, the latest model in the MedGemma collection. MedGemma 1.5 expands on MedGemma 1 by integrating additional capabilities: high-dimensional medical imaging (CT/MRI volumes and histopathology whole slide images), anatomical localization via bounding boxes, multi-timepoint chest X-ray analysis, and improved medical document understanding (lab reports, electronic health records). We detail the innovations required to enable these modalities within a single

MedGemma training datasets

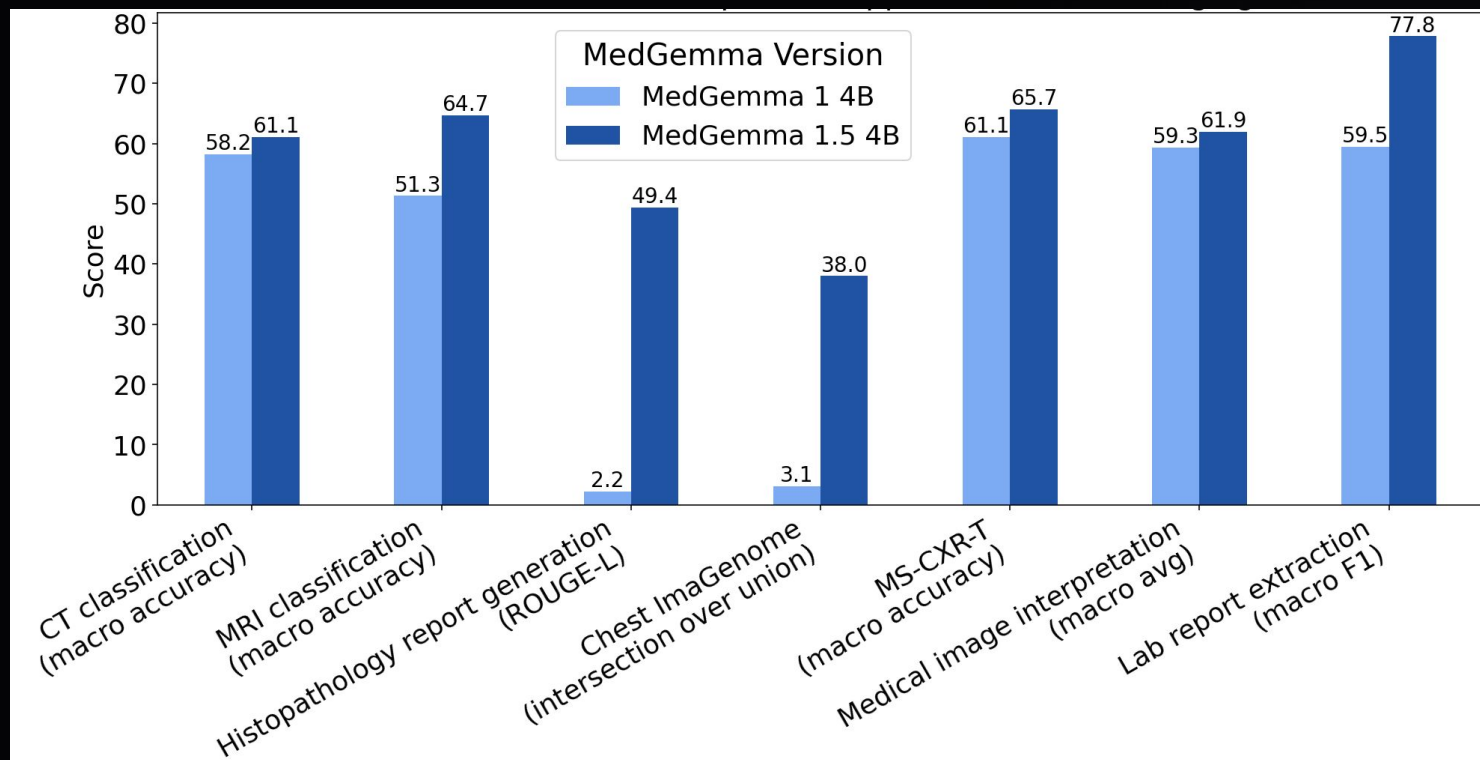
Modality	Dataset	No. examples	Training stages	Description
Text-only	MedQA	9,275	Distill, RL	USMLE style exam questions
	MedMCQA	182,806	Distill, RL	Indian medical entrance exam questions
	AfriMed-QA	1,003	Distill, RL	Pan-African English multi-specialty QA
	MedExpQA	434	Distill, RL	Spanish medical residency exam questions
	PubMedQA	1,000	Distill, RL	Biomedical QA compiled from PubMed abstracts
	LiveQA	634	Distill, RL	Consumer health questions from United States National Library of Medicine (NLM)
	HealthSearchQA	3,375	Distill, RL	Common consumer medical questions from search engines
	Synthetic	200,000	Distill	Generated from large IT teacher
Radiology	SLAKE	450	Vision, PT, RL	Captions generated from QA pairs
	VQA-Rad	1,391	RL	Radiology image QA pairs
	MIMIC-CXR	231,483	Vision, PT, RL	Chest X-ray images & free-form reports
	Digital Knee X-ray	1,469	Vision, PT	Knee X-ray images & labels
	CT-US1	59,979	Vision, PT	2D CT slices & free-form reports
	MRI-US1	47,622	Vision, PT	2D MRI slices & free-form reports
Histopathology	Internal histopathology	32,550,599	Vision, PT, RL	Histopathology image patches, caption pairs
Dermatology	PAD-UFES-20	2,047	Vision, PT	Skin lesion images & labels
	Internal dermatology	51,049	Vision, PT, RL	Skin lesion images & labels
Ophthalmology	EyePACS	199,258	Vision, PT, RL	Fundus images & labels
General Medical	PMC	41,853	Vision, PT	Single panel medical images & caption pairs

Vision: Vision encoder enhancement, PT: Pretraining, Distill: Distillation, RL: Reinforcement learning.

MedGemma 1.5 improves at medical text



MedGemma 1.5 improves at medical imaging

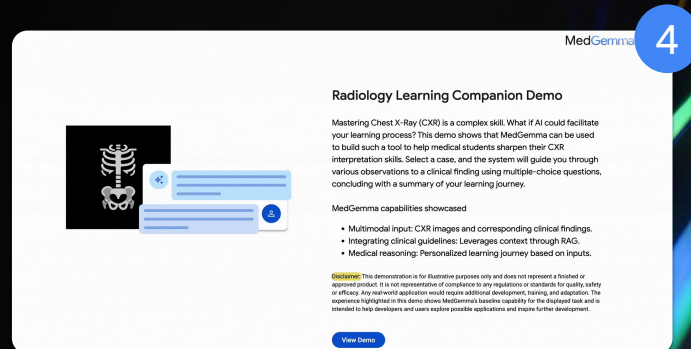
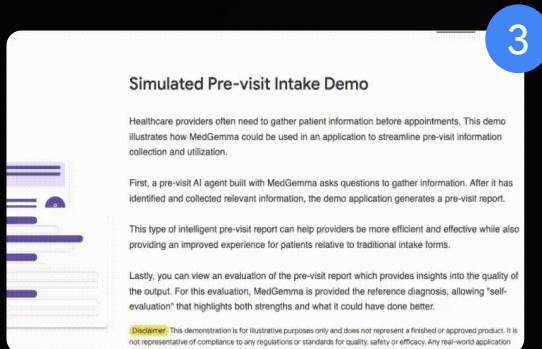
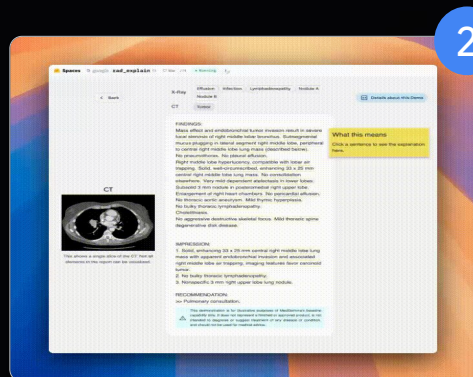




Demo Apps

Inspiring Product Development

Inspire product development with demo apps





HAI-DEF Showcase

Featuring Third Party Work

Success stories: sovereign AI

Taiwan



衛生福利部中央健康保險署
National Health Insurance Administration,
Ministry of Health and Welfare

Preoperative assessment of lung cancer surgeries to inform policy and optimize patient outcome | [Link](#)

Clinical validation

India



Building foundation models for the unique needs of India and contributing to digital public infrastructure | [Link](#)

Clinical validation

Singapore



AI SINGAPORE®

Building localized, sovereign multimodal health foundation models for primary care and specialty settings | [Link](#)

Active development

Success stories: health tech startups

Malaysia



Building a conversational interface to the country's clinical practice guidelines leveraging MedGemma | [link](#)

Clinical validation

Uganda



Mobile, offline capable applications for community health workers providing maternal care | [link](#)

Field validation

Zambia



Establishing cervical cancer screening in community health settings | [link](#)

Active development

Public Showcase



We love to publicly feature your work based on HAI-DEF assets!

Scan the QR code or visit the [Showcase](#) to see what's featured.



Clinical Applications

Are you using HAI-DEF assets in prospective studies, live clinical workflows, hospital deployments, or regulatory approval pipelines?



Technical Solutions & Tools

Have you built new model architectures, fine-tuning pipelines, developer tools, or data infrastructure on top of HAI-DEF?



Ready to share your work?

Scan the QR code or visit the [Showcase Intake Form](#) to submit your project.

Thank you!

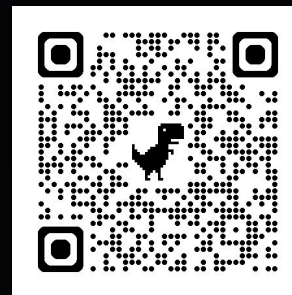
Please take
away and
spread the
word!



Main site
goo.gle/hai-def



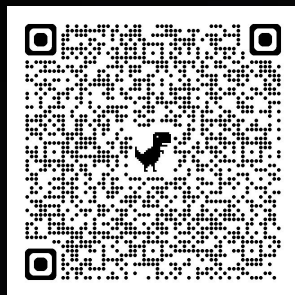
Developer Forum



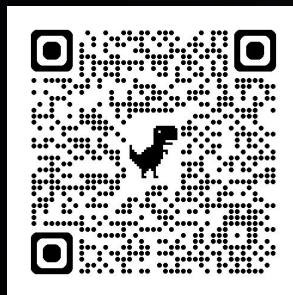
Model
Shortcuts



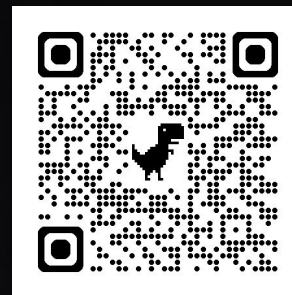
Newsletter



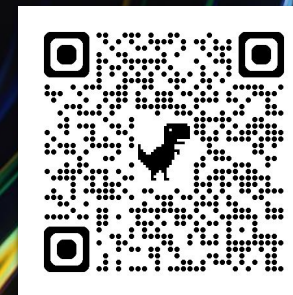
Model Garden



Hugging Face



Showcase



Feedback



Here to help founders progress.

Google for Startups

Google for Health

Google Cloud

Startups Digital Hub

Empowering startups
with Google Cloud

- Key industry events & webinars
- Google Cloud experts offering tailored support
- Learn from the success stories of leading startups



Discover more

Google for Startups

Cloud Program

-  Google Cloud credits—up to \$350,000 USD over two years
-  Google-wide discounts
-  Credits towards Google Skills
-  Build with the same models and infrastructure that power Google Products
-  Exclusive discounts and offers from Google Cloud partners

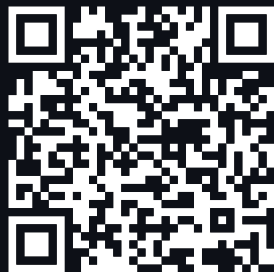


Discover more
about the program

Google Cloud

Perk up!

New exclusive offers from the
Google Cloud ecosystem



Discover perks
from our partners
and customers

 aiven  ElevenLabs  NVIDIA

 chainguard  Fireworks AI  Predibase

 CONFLUENT  GitLab  qodo

 chronosphere  JFrog  Redis

 databricks  mixpanel  Temporal

 DATADOG  MongoDB  elastic

 Weights & Biases  yugabyteDB

Thank you

Google for Startups

