

Good practices and existing frameworks – Humanity within artificial intelligence

Keyword: Truth

The good that already exists

Practices (concrete actions currently in place linked to the keyword)

BLOOM – A multilingual open-source language model for transparent, responsible, and accessible AI

BLOOM (Big Science Large Open-science Open-access Multilingual Language Model) is a large-scale language model (176 billion parameters), developed in 2022 by an international community of more than 1,000 researchers, coordinated by Hugging Face with the support of CNRS, the GENCI consortium, and the French Ministry of Higher Education.

Trained on a vast multilingual corpus called ROOTS (1.6 TB of curated and diversified textual data), BLOOM was designed to generate text in 46 natural languages and 13 programming languages. It is one of the first LLMs to be fully open-source, freely and publicly accessible in all its components: model code, model weights, training data, and documentation.

The primary goal of BLOOM is to ensure inclusive access to advanced AI, ensuring transparency, accountability, and respect for ethical principles. Its RAIL license (Responsible AI License) enforces responsible use of the model, prohibiting applications that violate human rights or promote discrimination, violence, or proportionate monitoring.

Frameworks (how to measure success – indicators)

The effectiveness of the BLOOM model is assessed through a comparative quantitative approach based on:

- Standard performance measurements on multilingual NLP benchmarks (including MMLU, HellaSwag, WinoGrande, WMT, XGLUE)
- Automated analyses of toxicity and bias in generated text
- Evaluations of linguistic perplexity as a measure of predictive capacity on unseen data

This approach is inspired by best practices in replicable and open scientific research, with full publication of data and experimental protocols.

Indicators for measurement

- **Linguistic perplexity:** value of 8.9 on the validation dataset, comparable to models of similar size
- **Comparative benchmarks:** competitive or superior performance to closed models such as GPT-3, especially in non-English languages (e.g., French, Spanish, Arabic)
- **Toxicity analysis:** BLOOM-generated texts show 17% less toxic content than GPT-2 and **13% less than GPT-3**, according to the ToxiGen metric
- **True multilingualism:** support for 46 natural languages, with sustained performance even in low-resource languages (e.g., Wolof, Khmer, Yoruba)
- **Collaborative impact:** involvement of 1,000+ contributors from 60 countries in a documented and open co-creation process.

Sources

Official scientific paper: <https://arxiv.org/abs/2211.05100>

Model technical card (Model Card): <https://huggingface.co/bigscience/bloom>

Introductory article on the ethical license: <https://bigscience.huggingface.co/blog/the-bigscience-rail-license> ([bigscience.huggingface.co in Bing](#))