2026 OPEN SOURCE IN FINANCE FORUM New York

November 4, 2026

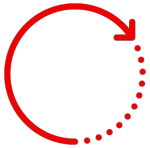
De-Risking Enterprise GenAI

Aligning Software Architecture and Compliance on AI Models Licensing

Alfonso Cancellara
Senior Technical Account Manager, OpenShift
Red Hat



Necessary disclaimers



Consider this presentation a living document rather than a final guide

It is subject to future iterations to reflect the fast pace of AI, peer feedback, and expert input



This presentation is meant for a general audience, not just AI experts

Expect necessary simplifications of AI concepts



Law-related concepts might be highly complex and vary between regions

Do not treat the content provided as formal legal advice

NOTE *Opinions in this presentation are my own*

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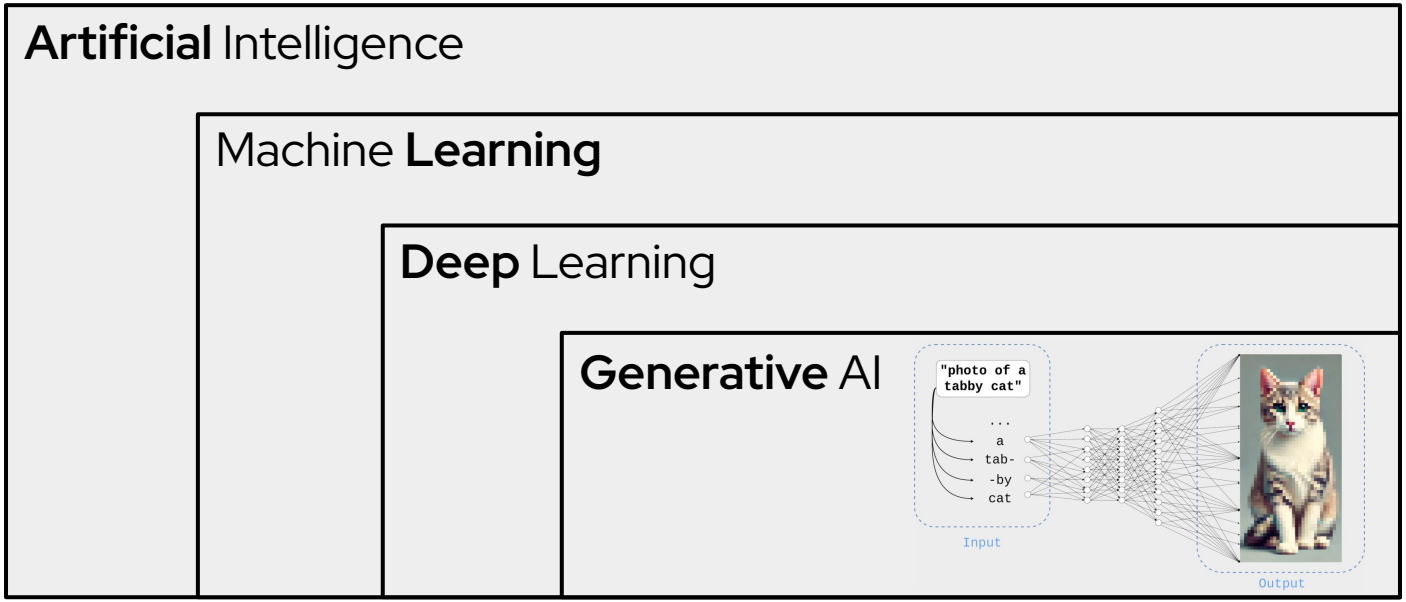


Foundational concepts of AI

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AI is a broad field

Different categories and techniques

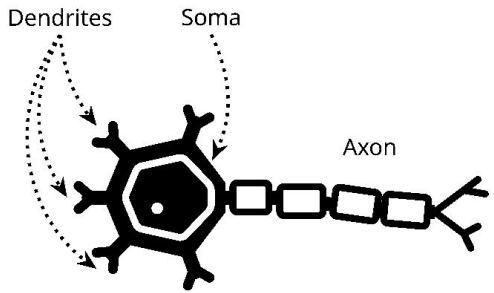


https://www.nvidia.com/en-us/glossary/deep-learning/

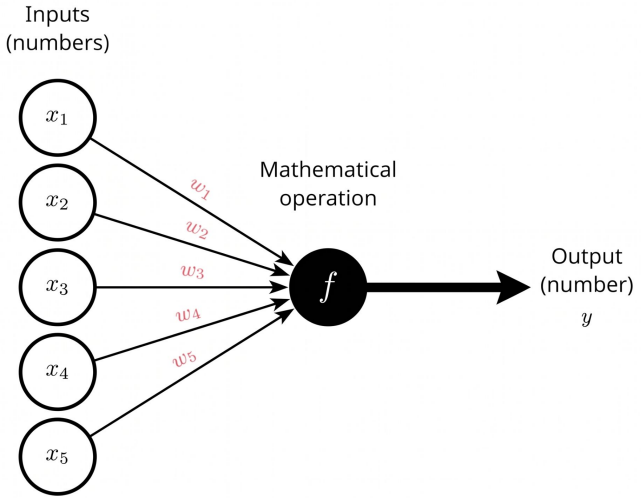
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What are Artificial Neural Network Models ?

Computational structures inspired by the human brain



Neuron



Perceptron

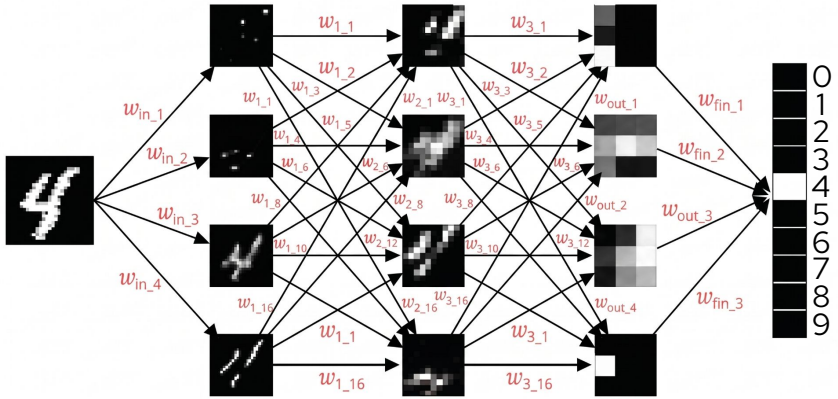
$$Y=f(WX+b)$$

Serrano L. G. (2021). *Grokking Machine Learning*. Manning Publications C. [Ch. 10]

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What are Artificial Neural Network Models ?

Computational structures inspired by the human brain

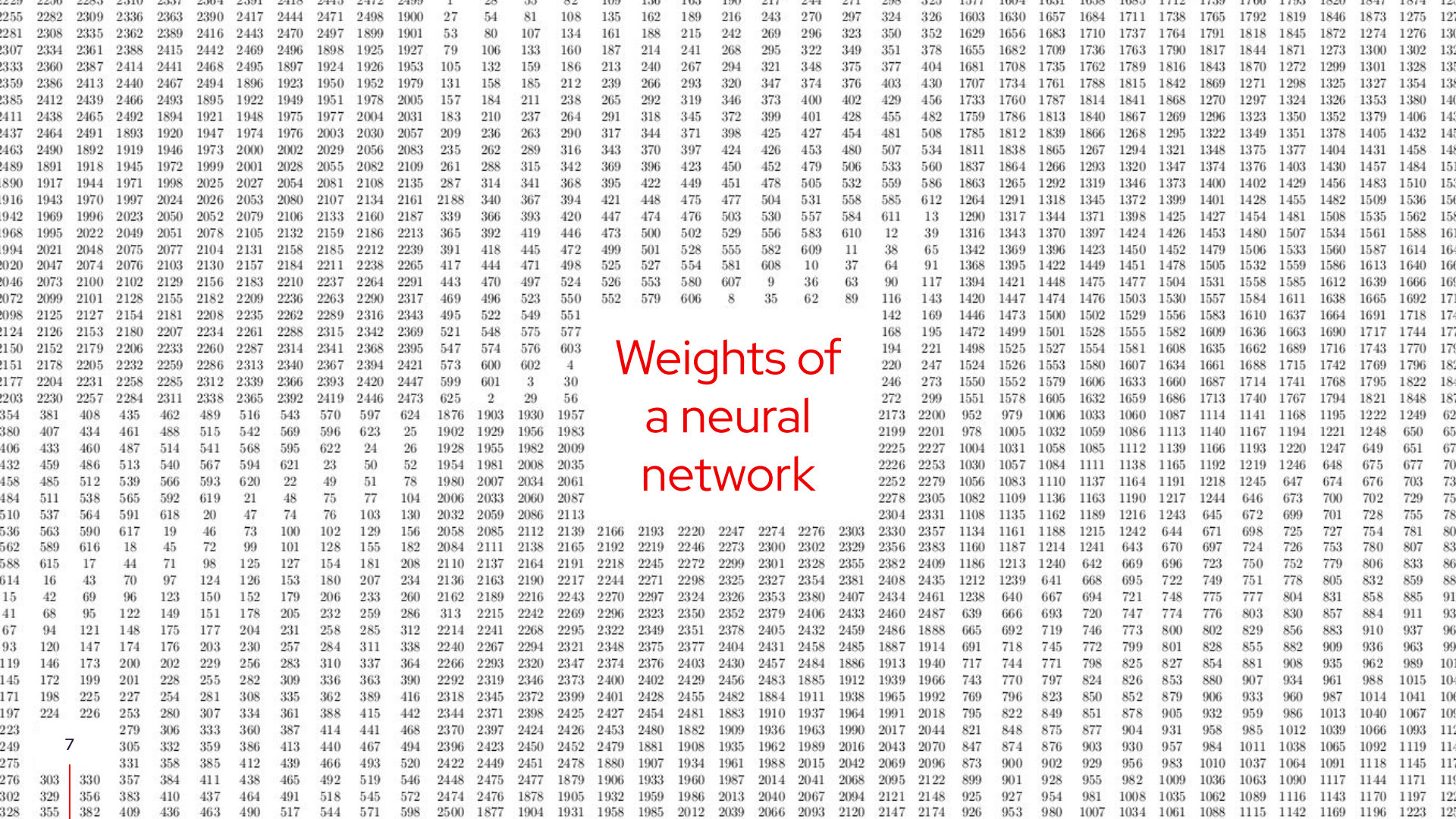


$$
\begin{aligned}
y = w^3_{1_1} f\Big(& w^2_{1_1} f(b^1_1 + x w^1_{1_1} + y w^1_{1_2}) + w^2_{1_2} f(b^1_2 + x w^1_{2_1} + y w^1_{2_2}) + \\
& w^2_{1_3} f(b^1_3 + x w^1_{3_1} + y w^1_{3_2}) + w^2_{1_4} f(b^1_4 + x w^1_{4_1} + y w^1_{4_2}) + b^2_1 \Big) + \\
w^3_{1_2} f\Big(& w^2_{2_1} f(b^1_1 + x w^1_{1_1} + y w^1_{1_2}) + w^2_{2_2} f(b^1_2 + x w^1_{2_1} + y w^1_{2_2}) + \\
& w^2_{2_3} f(b^1_3 + x w^1_{3_1} + y w^1_{3_2}) + w^2_{2_4} f(b^1_4 + x w^1_{4_1} + y w^1_{4_2}) + b^2_2 \Big) + \\
w^3_{1_3} f\Big(& w^2_{3_1} f(b^1_1 + x w^1_{1_1} + y w^1_{1_2}) + w^2_{3_2} f(b^1_2 + x w^1_{2_1} + y w^1_{2_2}) + \\
& w^2_{3_3} f(b^1_3 + x w^1_{3_1} + y w^1_{3_2}) + w^2_{3_4} f(b^1_4 + x w^1_{4_1} + y w^1_{4_2}) + b^2_3 \Big) + b^3_1
\end{aligned}
$$

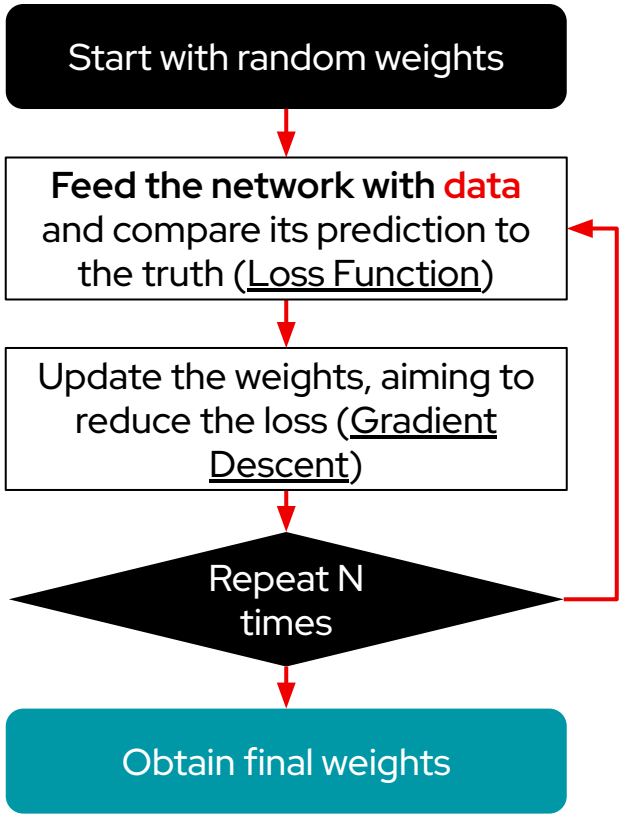
ANNs essentially act like a very complex **mathematical formula** to identify intricate patterns in data

LeCun, Y., Bottou, L., Bengio, Y., & Haffner, P. (1998). *Gradient-based learning applied to document recognition*. Proceedings of the IEEE, 86(11), 2278–2324

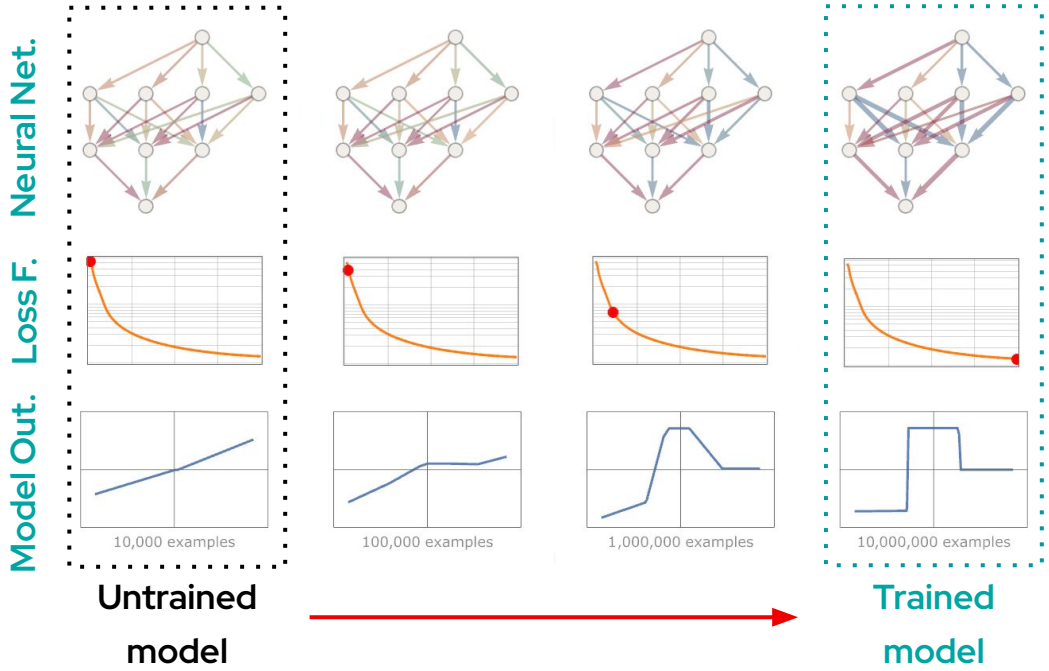
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Weights of a neural network

Model Learning (Training) Process



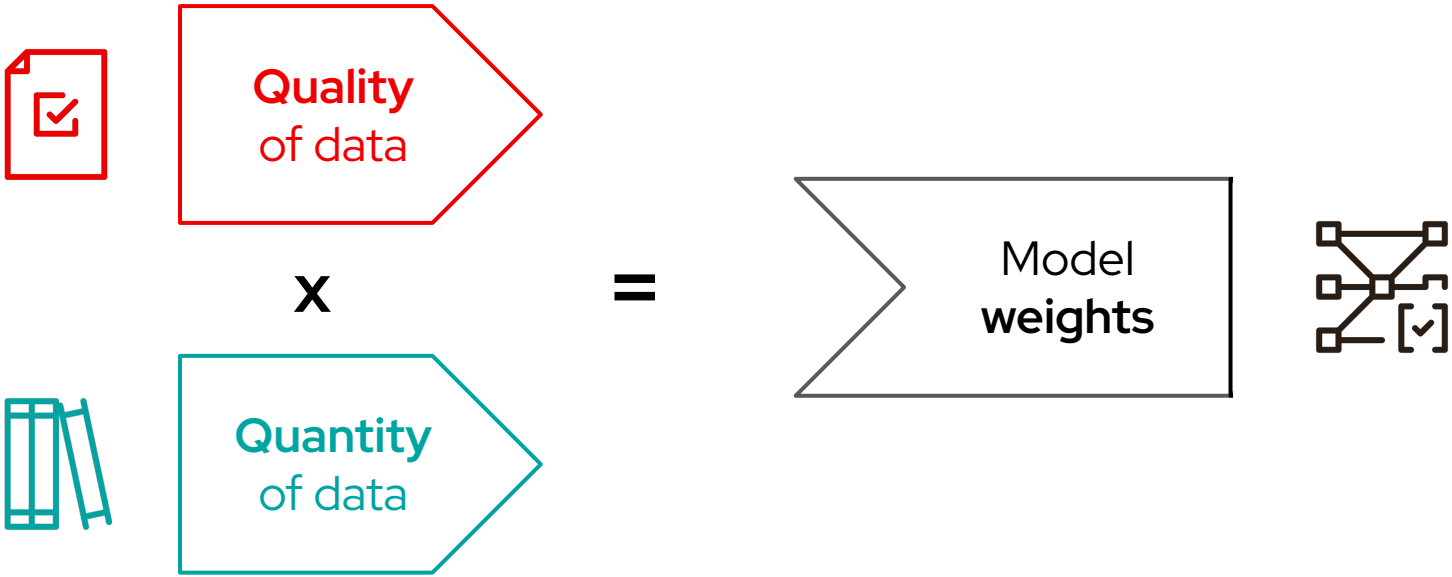
Find optimal weights



A more detailed entry-level description can be found on:
https://writings.stephenwolfram.com/2023/02/what-is-chatgpt-doing-and-why-does-it-work/

Model Learning (Training) Process

The caliber of the model is contingent upon both quality (and quantity) of input data



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Open Source Software

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What is Open Source Software ?

Different points of view

Free Software Foundation

Emphasis on Liberty: "Free (as in Freedom) software"

- **Freedom 0:** to run the program as you wish, for any purpose
- **Freedom 1:** to study how the program works, and change it
- **Freedom 2**: to redistribute copies so you can help others
- **Freedom 3**: to distribute copies of your modified versions to others

Open Source Initiative

Pragmatic Benefits: focuses on the advantages of peer review and faster development cycles

10 criteria for "Open Source Definition": Free Redistribution, Source Code, Derived Works, Integrity of the Author's Source Code, No Discrimination, License Must Not Be Specific to a Product or Restrict Other Software, License Must Be Technology-Neutral, etc ...

https://www.gnu.org/philosophy/free-sw.html
https://opensource.org/osd

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Open Source AI

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Challenges in defining Open Source AI

Key difference between “traditional” software and AI:
the **double nature of weights**



“Weights are **code**”

“Weights are **content**”



Should weights be released under a software license, or a data license ?

Discussion with Richard Fontana, a member of Red Hat's legal team, about AI Model Weights Packaging in Fedora:
Questions about machine-learning models for Fedora

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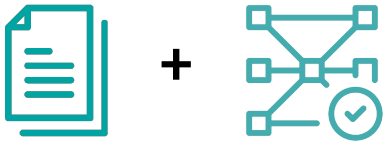
Challenges in defining Open Source AI

Applying the traditional OSS paradigm directly to AI systems presents challenges also because **AI systems are more complex**

Traditional Open Source Software focuses on human-readable **code**



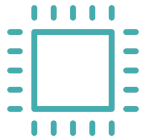
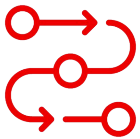
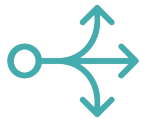
AI's heavy reliance on **vast datasets and opaque model weights** introduces components that fall outside the scope of the original Open Source definition(s)



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Challenges in defining Open Source AI

Applying the traditional OSS paradigm directly to AI systems presents challenges also because **AI systems are more complex**

Modify	**Edit** code **text** 	**Retrain / fine-tune** requires training code, data access, weights and **compute resources** 
Reproduce	Compilation is usually **deterministic** 	AI Models training is difficult to reproduce exactly (due to data order, hardware, algorithmic **randomness**) 

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Establishing a definition for Open Source AI



Criteria Scoring Approach → **Scores** an AI Model by measuring the depth of **disclosure regarding its development**, governance, and societal impact



Spectrum Approach → **Classifies** an AI Model along a gradient of openness, ranging from "fully closed" to "fully open", based on the **availability of its technical artifacts**



Binary Approach → **Labels** an AI Model into one of only two **mutually exclusive** categories: "open" or "closed"

Basdevant, A., et al. (2024). *Towards a Framework for Openness in Foundation Models*. Proceedings from the Columbia Convening on Openness in Artificial Intelligence

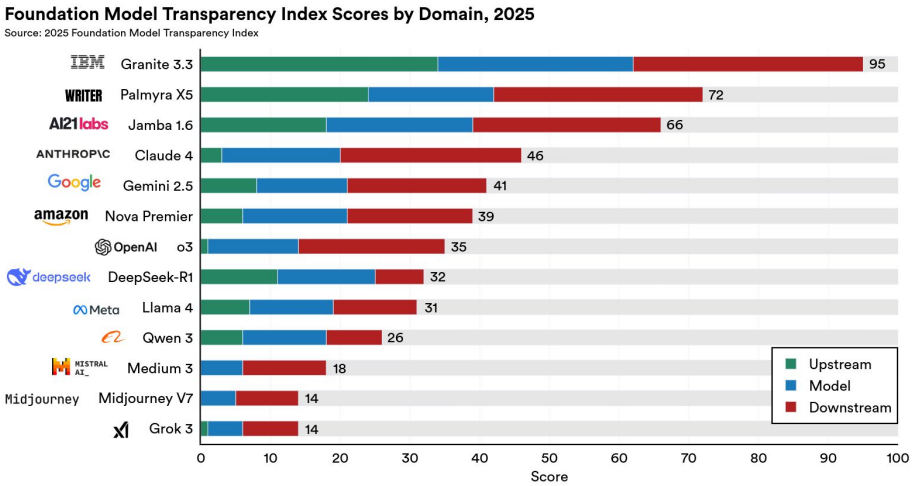
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Criteria Scoring Approach

Stanford's Foundation Model Transparency Index (FMTI)

Features **100 fine-grained indicators** designed to systematically measure corporate transparency regarding the disclosure of critical model lifecycle information

- **Upstream:** Resources such as data, labor, and compute
- **Model:** Details on size, capabilities, and risks
- **Downstream:** Factors like distribution channels, usage policies, and affected geographies



https://crfm.stanford.edu/fmti/

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Spectrum Approach

Linux Foundation's Model Openness Framework (MOF)

Openness

	Component	Content Type	RGAF
Open Science Class I Includes all Class II components	Research Paper	Documentation	Transparent & Explainable
	Datasets	Data	Ethical & Fair
	Data Preprocessing Code	Code	Transparent & Explainable
	Model Parameters (interm.)	Data	Accessible & Inclusive
	Model Metadata	Data	Transparent & Explainable
Open Tooling Class II Includes all Class III components	Training Code	Code	Transparent & Explainable
	Inference Code	Code	Accessible & Inclusive
	Evaluation Code	Code	Accountable & Rectifiable
	Evaluation Data	Data	Accountable & Rectifiable
	Supporting Libraries and Tools	Code	Accessible & Inclusive
Open Model Class III	Model Architecture	Code	Transparent & Explainable
	Model Parameters (final)	Data	Accessible & Inclusive
	Technical Report	Documentation	Transparent & Explainable
	Evaluation Results	Documentation	Accountable & Rectifiable
	Model Card	Documentation	Transparent & Explainable
	Data Card	Documentation	Ethical & Fair
	Sample Model Outputs	Data or Code	Ethical & Fair

Defines a tiered system (**Class I, II, III**) to benchmark model openness by assessing the distribution of its assets

https://isitopen.ai/

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Binary Approach

OSI's Open Source AI Definition (OSAID v1.0)



Extends Open Source Software principles to AI systems

An *Open Source AI* is an AI system made available under terms and in a way that grant the freedoms to:

- **Use** the system for any purpose and without having to ask for permission
- **Study** how the system works and inspect its components
- **Modify** the system for any purpose, including to change its output
- **Share** the system for others to use with or without modifications, for any purpose

https://opensource.org/ai/open-source-ai-definition

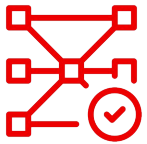
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OSAID requirements

As consequences of the 4 freedoms



Detailed Data Information: Comprehensive details about the training data (source, scope, characteristics, processing) must be provided to enable understanding and potential replication



Accessible Model Parameters: Trained model weights and configurations must be released under OSI-approved terms ensuring free use



Full Code Availability: Complete source code for training, running, and data handling must be provided under an OSI-approved license

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OSAID and Training Data

A Balancing Act

Sharing full AI training datasets faces legal (e.g., GDPR), copyright, and scale challenges

OSAID attempts a **pragmatic compromise**, balancing open principles with legal realities:

- It mandates providing ***detailed information about all training data*** (e.g., descriptions of unshareable data and where it might be acquired if possible)
- However, it ***does <u>not</u> mandate the release of the complete original training dataset*** in all cases

This has drawn **criticism** from some stakeholders who argue that without access to the actual data used for training, true reproducibility and the ability to fully study the system might be compromised

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Open Weights and “Openwashing”

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Open Source AI ?

	License	FMTI	MOF	OSAID
GPT-OSS	Apache 2.0	35 %	Class III (Open Model)	No
Gemma	Apache 2.0	41 %	Class III (Open Model)	No
V4	MIT	32 %	Class III (Open Model)	No
Llama	Meta Llama Community	31 %	Class III (Open Model)	No
Granite	Apache 2.0	95 %	Class II (Open Tooling)	No
Voxtral	Apache 2.0	18 %	Class III (Open Model)	No
Qwen 3.6	Qwen License	26 %	Class III (Open Model)	No
Nemotron	NVIDIA Open Model	N/A	Class III (Open Model)	No
OLMo	Apache 2.0	89 %	Class I (Open Science)	Yes

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Open Source AI ?

	License	FMTI	MOF	OSAID
GPT-OSS	Apache 2.0	35 %	Class III (Open Model)	No

Releasing a model under an Open Source license does not guarantee it qualifies as Open Source AI !

The AI Model might provide access to its parameters but still keep its training data and recipe private

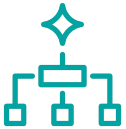
More accurately classified as **“Open Weights”**

https://opensource.org/ai/open-weights

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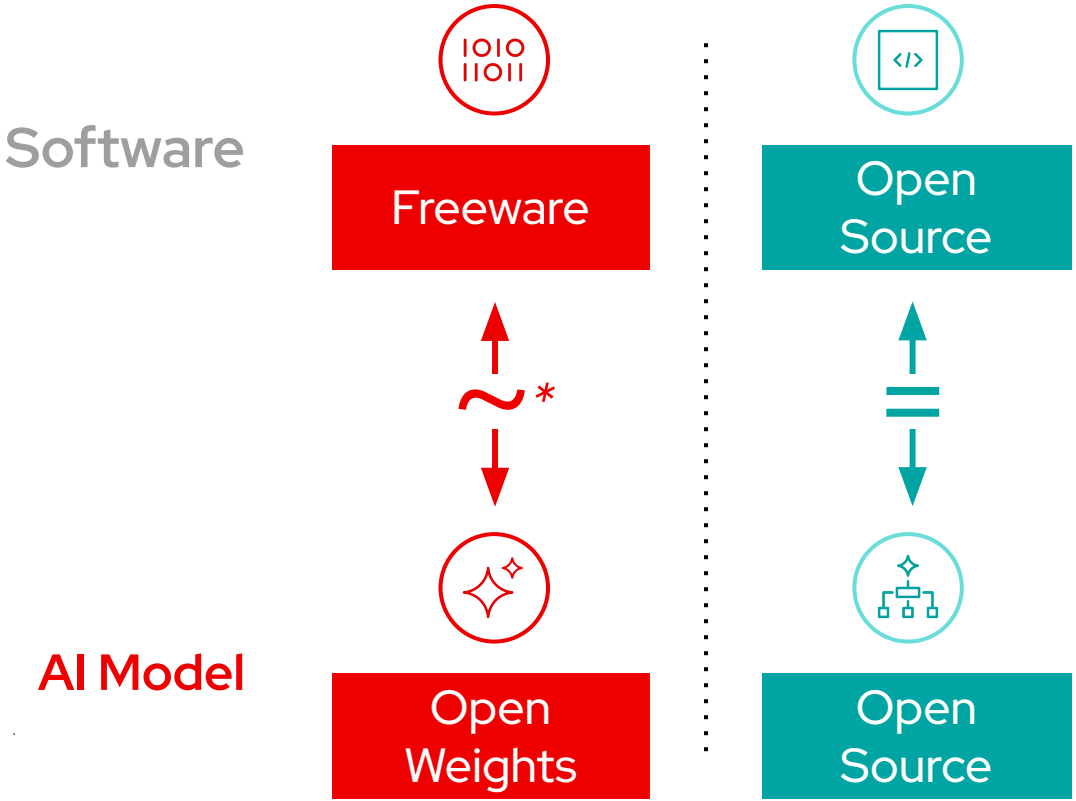
“Open Weights” AI





	Open **Weights** AI	Open **Source** AI
What's Included	⚠️ Model **Weights only**	✅ **Everything**: Weights, training code, data info, and architecture
Reproducibility	❌ **No**. The training process cannot be replicated or audited	✅ **Yes**. The entire model can be reproduced from scratch
Data Transparency	❌ **Opaque**. The training data is a “black box”, hiding potential biases	✅ **High**. Data sources, cleaning, and construction are disclosed
Auditing and Bias	⚠️ **Difficult**. Can only test outputs, not find the root cause of a problem	✅ **In-Depth**. Anyone can audit the data and code to find where bias was introduced
Collaboration	⚠️ **Limited**. The community is restricted to superficial fine-tuning	✅ **Full**. A global community can fix core bugs, improve training, and enhance data

Analogy between “traditional” software and AI



** Open Weights allow "fine-tuning",*
but this doesn't qualify as a way to fully modify the AI Model

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"Openwashing"

Definition
Deceptively marketing AI systems as "Open Source" when they don't meet genuine openness criteria (like OSAID). Analogous to "Greenwashing"

Motivations



- Marketing / PR (capitalize on positive image)
- Attracting investment
- Regulatory arbitrage (e.g., EU AI Act exemptions)
- Competitive strategy (undercut rivals, gain feedback without reciprocity)

Negative Impacts

- Erodes trust, misleads stakeholders, hinders innovation, obscures risks, complicates regulation

https://www.ru.nl/en/research/research-news/open-washing-generative-ai-how-meta-google-and-others-feign-openness

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Expectation vs. Reality



License	Qwen License
FMTI	26 %
MOF	Class III (Open Model)
OSAID	No

https://www.linkedin.com/posts/julienchaumond_seen-in-singapore-airport-happy-for-hf-to-share-7441515561005498369-r1Zd/

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Call to action

You can hold influence



Be vigilant

Don't let marketing hype dilute what "open" actually means.

As a community, we need to look under the hood of AI models to scrutinize their licenses, components, and governance.



Innovate Openly

Using Open Source AI isn't just strategic for business; it’s essential for real innovation.

True Open Source AI thrives because of peer review, diverse perspectives, and shared ownership.

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November 4, 2026

Thank you

De-Risking Enterprise GenAI: Aligning Software Architecture and Compliance on AI Models Licensing