OPEN SOURCE AI DEFINITION

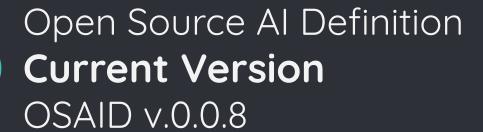
Online public townhall

July 26, 2024

Community agreements

- One Mic, One Speaker -- Please allow one person to speak at a time.
- Take Space, Make Space -- If you tend to talk more, we invite you to make space for others to share. If you tend not to share, we invite you to speak up.
- **Kindness** -- This work is hard, but we don't have to be. Gentleness and curiosity help. Those who use insults or hate speech will need to leave the meeting.
- **Forward Motion** -- We advance by focusing on what is possible in the moment and doing it. Obstacles are marked for later discussion, not used to stop the process. If we hit a boulder, we note it on the map and keep walking. We'll come back and unearth it later on.
- **Solution-Seeking** -- This work is so complex that focusing on what won't work will stop it. Suggesting new ideas, options, and proposals is vulnerable, but crucial. All of us are needed to make this work.
- Anything else?





Open Source Al Definition v.0.0.8

Preamble

4 Freedoms

Legal Checklist

What is Open Source Al

Use the system for any purpose and without having to ask for permissio
 Study how the system works and inspect its components.

Why we need Open Source Artificial Intelligence (AI)

Open Source has demonstrated that massive benefits active to everyone when you remove the barriers to learning, using, when you and improving ordinary explaints. These benefits are the result of using licenses that adhere to the Open Source Definition. The benefits can be summarized as autoromy, transparency, firchieses reuse, and collaborative improvement. Everyone needs these benefits in A. We need essential freedoms to make users to build and

- 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.

Precondition to exercise these freedoms is to have access to the preferred form to make modifications to the system.

systems

Preamble

The preferred form of making modifications for a machine-learning Open Source Al must include:

- Data information: Sufficiently detailed information about the data used to train the system, so that a skilled person can recreate a substantially equivalent system using the same or unitial data.
- same or similar data.

 For example, if used, this would include the training methodologies and techniques, the training data sets used, information about the provenance of those data sets, their scope and characteristics, how the data was obtained and selected, the labeling
- procedures and data cleaning methodologies.

 Code: The source code used to train and run the system.
- For example, if used, this would include code used for pre-processing data, code used for training, validation and testing, supporting libraries like tokenizers and hyperparameters search code, inference code, and model architecture.
- hyperparameters search ode, inference code, and model architecture.

 Model: The model parameters.

 For example, this might include checkpoints from key intermediate stages of training

Checklist to evaluate machine learning systems

This checklist is based on the paper The Model Openness Framework: Promoting Completeness and Openness for Reproducibility, Transparency and Usability in Al

Table of default required components

Required components	Legal frameworks
Data information	
- Training methodologies and techniques	Available under OSD- compliant license
- Training data scope and characteristics	Available under OSD- compliant license
- Training data provenance (including how data was obtained and selected)	Available under OSD- compliant license
- Training data labeling procedures, if used	Available under OSD- compliant license
- Training data cleaning methodology	Available under OSD- compliant license
Code	
- Data pre-processing	Available under 0 II-approved license
- Training, validation and testing	Available under 0 \$1-approved license
- Inference	Available under 0 \$I-approved license
- Supporting libraries and tools	Available under 0 SI-approved license
Model	
- Model architecture	Available under OSI-approved license
- Model parameters	Available under OSD- conformant terms

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Training data sets	Available under OSD-compliar license
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lenchmarking data sets	Available under OSD-compliar license
Data card	Available under OSD-compliar license
Controller data	Available under OSD-compliar





Open Source Al Definition Preamble

v.0.0.9 plans

Preamble

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Everyone needs these benefits in Al. We need essential freedoms to enable users to build and deploy Al systems that are reliable and transparent.

What is Open Source Al

An Open Source Al is an Al system made available under terms 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.

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Preferred form to make modifications to machine-learning systems

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- used for training, validation and testing, supporting libraries like tokenizers and hyperparameters search code, <u>inference code</u>, and model architecture.

 • Model: The model parameters:
- For example, this might include checkpoints from key intermediate stages of training as well as the final optimizer state.

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Code		
- Data pre-processing	Available under OSI-approved license	
- Training, validation and testing	Available under OSI-approved license	
- Inference Available under OS license		
- Supporting libraries and tools	Available under OSI-approved license	
Model		
- Model architecture	Available under OSI-approved license	
- Model parameters	Available under OSD-	

The following components are not required as the preferred form of making modifications, but their inclusion in releases is appreciated.

Optional components	Legal frameworks
Data Information All data sets, including:	
Training data sets	Available under OSD-compliant license
Testing data sets	Available under OSD-compliant license
Validation data sets	Available under OSD-compliant license
Benchmarking data sets	Available under OSD-compliant license
Data card	Available under OSD-compliant license
Evaluation data	Available under OSD-compliant license



Clarifying that the **recipients** of the freedoms are developers, deployers and end-users

Source Al Definition Four **Freedoms**

v.0.0.9 plans

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Clarifying that the four freedoms of open source Al are derived from the **Free Software** Definition

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v.0.0.9 plans

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Underlining that components and systems must be free from encumbrances that prevent any developer, deployer, or users from exercising those freedoms



Open Source Al Definition Preferred Form

v.0.0.9 plans

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Adding definitions of...

... the "OSD compliant" requirement for data information...

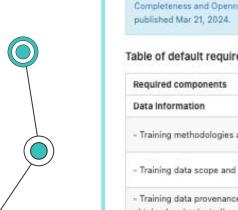
...and the "OSD conformant" requirement for model parameters

..so legal requirements are clear for each component



Source Al Definition Checklist

v.0.0.9 plans



Checklist to evaluate machine learning systems This checklist is based on the paper The Model Openness Framework: Promoting Completeness and Openness for Reproducibility, Transparency and Usability in Al Table of default required components Legal frameworks Available under OSD-- Training methodologies and techniques compliant license Available under OSD-- Training data scope and characteristics compliant license - Training data provenance (including how data was Available under OSDcompliant license obtained and selected)

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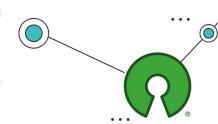
freir inclusion in releases is anneciated Data Information All data sets, including

Training data sets

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- Evaluation data

Checklist will be a separate document and process and its components will be updated to follow the **Model Openness** Framework (MOF) precisely.



Open Source Al Definition **System Validation**OSAID v.0.0.8 (and soon v. 0.0.9)



Validation Reviewers

We were interested in reviewing about 10 Al systems self-described as open to validate the definition.

1. Arctic

 Jesús M. Gonzalez-Barahona Universidad Rey Juan Carlos

2. BLOOM

- 2. **Danish Contractor**BLOOM Model Gov.
 Work Group
- 3. **Jaan Li** University of Tartu, One Fact Foundation

3. Falcon

- 1. Casey Valk Nutanix
- Jean-Pierre Lorre LINAGORA, OpenLLM-France

4. Grok

- Victor Lu independent database consultant
- 2. **Karsten Wade** Open Community Architects

5. Llama 2

- Davide Testuggine
 Meta
- Jonathan Torres Meta
- Stefano Zacchiroli
 Polytechnic Institute of Paris
- 4. **Victor Lu** independent database consultant

9. LLM360

5. **[Team member TBD]** LLM360

We will need an independent reviewer for LLM360

8. Mistral

- Mark Collier
 OpenInfra Foundation
- 2. **Jean-Pierre Lorre** LINAGORA, OpenLLM-France
- 3. Cailean Osborne
 University of Oxford,
 Linux Foundation

7. OLMo

- 4. **Amanda Casari** Google
- 5. **Abdoulaye Diack** Google

8. OpenCV*

9. Phi-2

6. **Seo-Young Isabelle Hwang** Samsung

10. Pythia*

- Seo-Young Isabelle Hwang Samsung
- 2. **Stella Biderman** EleutherAl
- Hailey Schoelkopf
 EleutherAl
- Aviya Skowron EleutherAl

11. T5

 Jaan Li University of Tartu, One Fact Foundation

Viking

6. **Merlijn Sebrechts**Ghent University

Validation Updates

Thanks to **Arctic** and **LLM360** for helping identify documentation!

Al System	Meets OSAID requirements?	Notes
Name of system with link to its review sheet	Based on OSAID v. 0.0.8 and/or v.0.0.6	Summary explanation of status (as of 6/11/24)
Arctic	Expect Yes	Verbal confirmation from Snowflake, which is adding legal documents to review sheet (6/3/24)
BLOOM	Confirmed No (license fails)	Usage restrictions in RAIL license
<u>Falcon</u>	Expect No	Documents on training methodologies and techniques and training, validation and testing are missing
Grok	Expect No	Very little public information on system
Llama 2	Confirmed No	Data pre-processing + training, validation and testing code are not available
<u>LLM360</u>	Expect Yes	Self-certified as compliant on the forum, awaiting addition of reviewable documents to their sheet
Mistral	Confirmed No	Some data information and code components missing, no training code available
<u>OLMo</u>	Expect Yes	Supporting libraries and tools unclear, but all other legal documentation is present
<u>OpenCV</u>	Unclear	Model requirement unclear because OpenCV does not store, but instead supports external deep learning frameworks
Phi-2	Unclear	Data information, code, and model information missing
Poro	Unclear	Most review documentation not yet located; Located documentation meets OSAID requirements
<u>Pythia</u>	Confirmed Yes	Only non-alignment was absence of labeling documentation, which was not created. v 0.0.8 adds "if used" to requirement, resolving this
<u>T5</u>	Expect Yes	Only possible restriction is in supporting libraries and tools because gcloud command requires special hardware. Hardware requirements are out of scope for the OSAID, so this is likely not a recognized restriction.

Open Source Al Definition What's Next?

June - October 2024

- Complete validation phase
- Resolve comments, release v. 0.0.9 after validation
- Cut the release candidate with sufficient endorsement



Board Guidance



Supported by diverse stakeholders

The definition needs to have approval by end users, developers, deployers and subjects of Al, globally.

Provides real-life examples

The definition must include relevant examples of Al systems that comply with it at the time of approval, so cannot have an empty set.

Ready by October 2024

A usable version of the definition needs to be ready for approval by the board at the October board meeting.





2024 Timeline			System testing work stream Stakeholder consultation wo Release schedule		
February	June	July	August	September	October
Call For Volunteers + Activity Feedback and Revision	Virtual System Review	Virtual System Review	Virtual Syste Review	W Virtual System Review Ends	
Bi-Weekly Virtual Public Townhalls	Bi-Weekly Virtual Public Townhalls	Townhalls + - OSPOs for Good (NYC) - Sustain Africa (virtual)	Townhalls + - Al-dev (Ho Kong)	Townhalls + ng - Nerdearla (Buenos Aires)	Townhalls + - All Things Open (Raleigh) - Data Workshop (Europe TBD)
Draft 0.0.5	Draft 0.0.8	Draft 0.0.9	RC1	RC1	Stable Version

In-Person Meetings

Region	Country	City	Conference	Date
North America	United States	Pittsburgh	✓ PyCon US	May 17
Europe	France	Paris	√ 0W2	June 11 - 12
North America	United States	New York	✓ OSPOs for Good	July 9 - 11
Africa	Virtual	Virtual	✓ Sustain Africa	July 15
Asia Pacific	China	Hong Kong	Al_dev	August 23
Latin America	Argentina	Buenos Aires	Nerdearla	September 24 - 28
Europe	France	Paris	Data governance	October
North America	United States	Raleigh	All Things Open	Oct 27 - 29

Co-Design Workshop in Raleigh, USA



Co-Design Workshop in Monterey, USA



Co-Design Workshop in Addis Ababa, Ethiopia



How to Participate:)

- Public forum: <u>discuss.opensource.org</u>
- Become an OSI member
 - Free or or full
 - SSO with other OSI websites
- Biweekly virtual townhalls... like this one!
- Volunteer to help with validation (email or DM Mer Joyce)



Q & A

Thank you

We realize this is difficult work and we appreciate your help and openness in improving the definition.