OPEN SOURCE AI DEFINITION

Online public townhall

Jan 12, 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?**
The objective for 2024
Open Source AI Definition
version 1.0
Definition of AI system

Preamble

Why we need Open-Source Artificial Intelligence (AI)

Open Source has demonstrated that massive benefits accrue to everyone when you remove the barriers to learning, using, sharing and improving software systems. These benefits are the result of using licenses that adhere to the Open Source Definition. The benefits can be defined as autonomy, transparency, and collaborative improvement.

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

How we can get the benefits of Open Source AI

A pre-requisite for a system to be Open Source software is that developers must have unrestricted access to the "source code to make modifications to the work".

For AI systems, the preferred form to make modifications to the work depends on the specific kind of AI.

Out of scope issues

The Open Source AI Definition doesn’t say how to develop and deploy an AI system that is ethical or responsible, although it doesn’t prevent it. What makes an AI system ethical or responsible is a separate discussion.

4 freedoms

What is Open Source AI

To be Open Source, an AI system needs to make its components available under licenses that individually grant the freedoms:

- Study how the system works and inspect its components.
- Use the system for any purpose and without having to ask for permission.
- Modify the system to change its recommendations, predictions or decisions to adjust to your needs.
- Share the system with or without modifications, for any purpose.

License checklist

Checklist to evaluate licenses

[Provide an example, based on machine learning]
How Open Source came to be

1: Legal framework
Copyright applied to software, first.
This new artifact became privatized work.
Researchers complained.

2: Principles
The GNU Manifesto lays the ground to oppose privatization.
A community forms around these principles.

3: Licenses
Copyleft is a hack on copyright.
Incorporating the principles, serving as the Constitution of a forming community.
Golden Rule applied to AI

If I like an **AI system** I must be free to share it with other people.
What we’ve learned so far

- We need to define Open Source AI, in general, not just machine learning
- OECD’s definition of AI is well accepted (caveat: decisions)

“An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.” (2023)
Matching expectations

AI deserves to enjoy the benefits of Open Source
- autonomy
- transparency
- collaborative improvement
- ensuring the agency of the user

Policy makers, academia and industry are focusing on
- transparency
- trustworthiness
- reliability
- transparency
- explainability
- fairness
- safety etc
What basic freedoms do we need?

What is the preferred form to make modifications to an AI system?
What is Open Source AI

To be Open Source, an AI system needs to be available under legal 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 to change its recommendations, predictions or decisions to adapt to your needs.
- **Share** the system with or without modifications, for any purpose.
What is the preferred form to make modifications to an AI system?
## Getting the specifications

<table>
<thead>
<tr>
<th>AI systems</th>
<th>List of components</th>
<th>Legal frameworks</th>
<th>Legal documents</th>
<th>Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>What elements are necessary to:</td>
<td>What elements are necessary to:</td>
<td>For each artifact, evaluate which laws apply. Some will be under “Intellectual Property” regimes, some will be under other regimes.</td>
<td>We'll match the components and the identified legal frameworks with the terms of the legal documents already in use, where available.</td>
<td>After repeating this exercise enough times, we'll be able to generalize the outcomes and write the specs to evaluate the freedoms granted.</td>
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<td>an AI system?</td>
<td>an AI system?</td>
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</table>
Small working groups to analyze systems

For each in:
- Pythia
- Llama2
- BLOOM
- Mistral
- Phi2
- ...

- What do you need to give an input and get an output? (use)
- What do you need to give an input and get a different output? (modify)
- What do you need to understand why given an input, you get that output? (study)
- What do you need to let others give an input and get an output? (share)

What’s the preferred form to make modifications to an AI system?
Freedom to use:

- What do you need to give an input and get an output from Pythia?
Freedom to study:

- What do you need to understand why Pythia, given an input, gives one output?
Freedom to modify:

- What do you need to give an input and get a different output from Pythia?
Freedom to share:

- What do you need to let others give an input and get an output from Pythia or a version you modified?
Then the rest

- get the legal framework for each component
- get the legal documents
- analyze the documents
- write up a summary

Repeat for at least 4-5 AI systems, ideally not just LLMs and “Generative AI”
2024 timeline

System testing work stream
Stakeholder consultation work stream
Release schedule

**February**
- Call For Volunteers + Activity
- Feedback and Revision
- Bi-Weekly Virtual Public Townhalls

**March**
- Virtual System Review Meetings Begin
- Bi-Weekly Virtual Public Townhalls
- Draft 0.0.5

**April**
- Virtual System Review Meetings Continue
- Bi-Weekly Virtual Public Townhalls
- Draft 0.0.6

**May**
- Virtual System Review Meetings END
- Bi-Weekly Virtual Public Townhalls
- Draft 0.0.7

**June …**
- Feedback Informs Content of OSI In-Person Stakeholder Meeting
- Bi-Weekly Virtual Public Townhalls
- Draft 0.0.8

**… October**
- Monthly Virtual Meetings
- Release version 1.0
- V. 1.0

**Release schedule**
Criteria for RC1 and v. 1.0

RC1
- Expected outcome of in-person meeting end May/early June!
- The draft is completed in all its parts
- The draft is supported by at least 2 representatives for each of the 6 stakeholder groups

version 1
- Expected outcome of in-person and online meetings through the summer/early autumn
- The draft is endorsed by at least 5 reps for each of the stakeholder groups
- Announced in late October
Help us find stakeholders

<table>
<thead>
<tr>
<th>System Creator</th>
<th>License Creator</th>
<th>Regulator</th>
<th>Licensee</th>
<th>End User</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes AI system and/or component that will be studied, used, modified, or shared through an open source license (e.g., ML researcher in academia or industry)</td>
<td>Writes or edits the open source license to be applied to the AI system or component; includes compliance (e.g., IP lawyer)</td>
<td>Writes or edits rules governing licenses and systems (e.g. government policy-maker)</td>
<td>Seeks to study, use modify, or share an open source AI system (e.g. AI engineer, health researcher, education researcher)</td>
<td>Consumes a system output, but does not seek to study, use, modify, or share the system (e.g., student using a chatbot to write a report, artist creating an image)</td>
<td>Affected upstream or downstream by a system output without interacting with it intentionally; includes advocates for this group (e.g. people with loan denied, or content creators)</td>
</tr>
</tbody>
</table>

✅ Enough to start

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⚠ Leads to US, EU, Singapore, no commitment yet

✅ Enough to start

⚠ Which org is squarely in this space?

ACLU, Algorithmic Justice League
It doesn’t end with v. 1.0

We’ll need to define rules for maintenance and review of the Definition
OSI’s immediate next steps

- more publicity to the process
  - public discussion forum
  - bi-weekly townhalls
  - more opportunities to volunteer
- update project landing page
- reach out to more stakeholders
- raise funds for 2024 meetings
- setup the board for review and approval of v. 1.0
Draft v. 0.0.4 of the Open Source AI Definition
Open to public comments

https://opensource.org/deepdive/drafts
Become a member of OSI

https://members.opensource.org/join
Support more workshops in 2024

@ed@opensource.org
stefano@opensource.org
**Introduction**

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:

**1. Free Redistribution**

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

**2. Source Code**

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost, preferably downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.

**3. Derived Works**

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

**4. Integrity of The Author's Source Code**

The license may restrict source-code from being distributed in modified form only if the license allows the distribution of “patch files” with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

**5. No Discrimination Against Persons or Groups**

The license must not discriminate against any person or group of persons.

**6. No Discrimination Against Fields of Endeavor**

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

**7. Distribution of License**

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

**8. License Must Not Be Specific to a Product**

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

**9. License Must Not Restrict Other Software**

The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

**10. License Must Be Technology-Neutral**

No provision of the license may be predicated on any individual technology or style of interface.
Three building blocks of AI 

- Hardware 
- Knowledge 
- Data 

Money 
Time 
Gazillions of laws
A typical $FOO$ is made of

Software for training and testing, inference and analysis

All that is written by a human and copyrightable must be Open Source.

Model architecture and its weights and training parameters

No restrictions on:
- Who can use them
- How they’re used
- Retraining
- Redistribution

Raw data and prepared datasets, for training and testing

It’s **not** the preferred form for making modifications to model/weights.

Does that mean the Definition can ignore the original data?
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Unless it kills you
“Thou shall not use [my code | my art] in your dataset.”

Golden Rule violated!
If I like an AI system I must share it with other people who like it

EFF: How We Think About Copyright and AI Art
Accumulating data is already highly regulated

Privacy
Anti-discrimination
Accessibility
Disability protection
National security
Human rights

FTC Lina Kahn on regulating AI
https://www.nytimes.com/2023/05/03/opinion/ai-lina-khan-ftc-technology.html
Fun with names

AI, Artificial Intelligence
- It’s a **science** with 70 years of history
- Ignore the hype
- It has no “intelligence”

Machine Learning, drop AI?
Open Source AI? No!

What then?
What are Open Source AI Components

For the purposes of today’s work, we are defining the components* of an AI system broadly as:

- **Code** Instruction for a computer to complete a task.
- **Model** Abstracted representation of what an AI system has learned from the training data.
- **Data** Information converted into a form efficient for processing and transfer.

*sources: Digital Public Goods Alliance, Bunch, Appen, ComputerScience.org
**What Makes an AI System Open Source**

How should the freedoms apply to each component for the AI system to be licensed as open?

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<th>Use</th>
<th>Modify</th>
<th>Share</th>
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