

What Is Open Source Artificial Intelligence (AI)?

Open source AI is an artificial intelligence technology that is publicly available for commercial and non-commercial use under various open source licenses. Open source AI could include various technologies that are helpful for product teams, independent app developers, and enterprises.

These include:

- **Open source datasets:** AI software is trained on data, and in open source AI, the training data and test data are freely available. Even if you aren't using open source AI software, these datasets will be available to you to make your models more reliable and

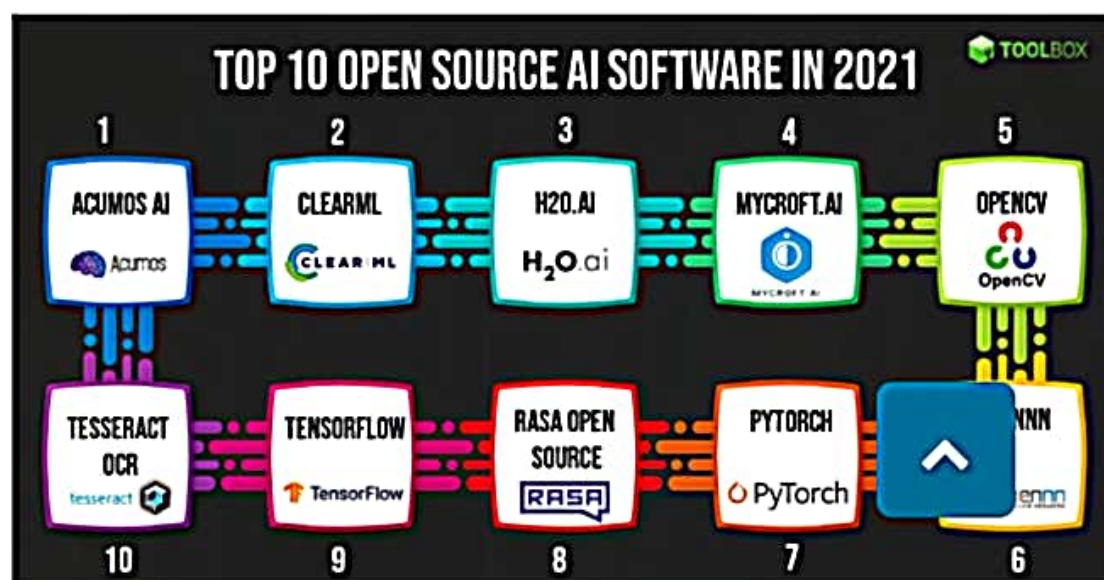
can deploy as is, train using open source or [enterprise data](#), or configure the code to create customized AI applications.

- **Open source UI:** The developer interface necessary for leveraging open source AI effectively can also be available as an open source. These can range from command line interfaces to sophisticated GUIs. You could even find a UI overlay that works with a different algorithm library without containing one of its own.

Open-source AI is different from freeware AI applications — the underlying code is exposed to the user and open for modifications and implementations in scenarios other than the ones originally intended. Open source also comes with a large active community, where developers can both contribute and ask for help.

As mentioned, AI software can come in various shapes and sizes, spanning datasets, algorithms, and UI, or any combination of the three. In this roundup (arranged in alphabetical order), we focus on the top ten open source AI algorithm libraries that you can use to build software applications, addressing common AI use cases like computer vision, object recognition, character recognition, speech-to-text, and more.

Disclaimer: This is a curated list based on publicly available information and may include websites targeting mid-to-large enterprises. Readers are advised to conduct their own final research to ensure the best fit for their unique organizational needs.



1. Acumos AI

Overview: Founded in 2019, Acumos is a relatively new entrant in the open source AI software segment – but it is backed by industry leaders AT&T and TechMahindra. The two companies wanted to buck the trend of tech giants like Microsoft, Google, and Apple leading open source innovations and make AI available for commercial deployments. That's how they introduced Acumos AI, a design studio based on Linux, to help integrate other frameworks and develop cloud-based AI apps.

Key features: Some key features of Acumos AI include:

- The Acumos marketplace to discover and deploy various AI libraries
- Onboarding support to enable interoperability

USP: A major USP of Acumos AI is its GUI design studio feature. It simplifies the development process through visual programming and streamlined AI development, making it more accessible. You can also leverage the onboarding tools to enable interoperability with other frameworks like TensorFlow, H2O, etc.

Editorial comments: Acumos is a compelling open source option for those interested in greater AI accessibility. It standardizes the [infrastructure](#) stack so you can develop and deploy AI applications faster, and it is compatible with most major languages, including Java, Python, and R. The Acumos AI Platform drives the end-to-end lifecycle of AI/ML apps from model creation to execution, enrichment, and publishing in a marketplace.

Key features: Some key features of ClearML include:

- An ecosystem for experiment management with zero integration hassles
- Experiment orchestration inside containers (development as well as production)
- Scheduling of jobs via priority queues and resource allocation
- Remote allocation of computing resources through a single line of command
- The ability to run Bayesian hyperparameter optimization with zero integration
- Collaborative workspace with optional permission management

3. H2O.ai

Overview: Founded in 2012, H2O has been at the forefront of open source AI innovation for almost a decade. The company works with tech giants like NVIDIA, IBM, Intel, and Google, among others, to drive large-scale AI and ML products. The company was recently accredited by the Infocomm Media Development Authority (IMDA) of Singapore, further cementing its global presence and allowing Singapore's public sector organizations to gain from H2O.

Key features: H2O.ai's key features include:

- Integration with Hadoop and Spark for big data-based AI modeling
- Library of ML algorithms including supervised and unsupervised learning
- Built-in intelligence to anticipate schemas of incoming datasets

USP: H2O's biggest USP is its AI hybrid cloud capability. This means it is an end-to-end platform that lets you prepare, model, operate, develop, and consume AI (in collaboration with others) within a centralized environment. Since it is deployed with Kubernetes, you can run it on any cloud or even on-premise infrastructure.

Editorial comments: H2O is excellent for enterprises just getting started with AI, as you can begin with the open source platform that trains on your enterprise data. As more applications are developed, H2O can support your enterprise journey through training, enhancement requests, auto-ML, and other capabilities.

4. Mycroft.ai

Overview: Mycroft is an open source voice assistant that you can run in any ecosystem. The company has won several

Key features: Some of the key features of Mycroft.ai include:

- The option to purchase a hardware shell that contains the voice assistant (available in three versions – Mark 1, Mark 2, and Mark 3)
- Releases available for Android, Linux, and Docker, as well as macOS and Windows via a VirtualBox VM
- Modular architecture with replaceable internal components
- Speech to text conversion in partnership with Mozilla's Common Voice Project and DeepSpeech software
- Intent parsing, by converting natural language into machine-readable data structures
- Text to speech conversion based on the Festival Lite speech synthesis system

USP: The biggest USP of Mycroft is that it is relatively easy to get started. It offers a private AI-based voice alternative to commercial deployments like Alexa or Siri, which will inevitably mine data on some level. That's why it has been involved in several public sector and philanthropic initiatives, where data privacy is essential.

Editorial comments: Unlike most open source AI software, Mycroft is staunchly use-case-focused. However, if you have a voice assistant requirement and want to opt for open source, Mycroft is among the most powerful options available.

5. OpenCV

Overview: Open Source Computer Vision Library or OpenCV is a rich library of AI algorithms intended to address real-time computer vision functionalities. It was launched in the early days of AI development as part of an Intel research project back in 1999. In 2012, it was taken

Key features: Some of the key features of OpenCV include:

- Proven applications across a variety of use cases, including facial recognition, human-computer interactions, object detection, motion tracking, and more
- ML library containing algorithms for decision tree learning, k-nearest neighbor algorithm, artificial neural networks, random forest, and deep neural networks (DNN), among others
- Compatible with all desktop ecosystems as well as Android, iOS, Maemo, and BlackBerry 10
- Paid courses on computer vision, use cases, and deep learning
- Primarily designed in C++, along with wrappers in Java, Python, etc.
- A hardware store for spatial imaging cameras