

# ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

DAY – 15

11 July 2025

## LLaMA 3

LLaMA 3 is Meta's (Facebook's) latest open-source AI language model, released in 2024. It is designed to understand and generate human-like text, just like ChatGPT.

- Made by Meta (the company behind Facebook, Instagram, and WhatsApp).
- Comes in different sizes: 8B, 70B, and a newer 405B version.
- Trained on lots of text data (15 trillion words!) from books, websites, code, and more.
- Can understand and answer questions, write essays, generate code, and even process images (in newer versions).

### Example of Use:

You can ask LLaMA 3 things like:

"Summarize this article"

"Write a poem about space"

"Explain Python code"

And it will respond intelligently — like a chatbot or smart assistant!

## Step-by-Step: Install LLaMA 3

### Step 1: Update Your System

Open your terminal and run:

`sudo apt update`

```
step@step-HP-ProDesk-400-G5-SFF:~$ sudo apt update
[sudo] password for step:
Hit:1 http://in.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease [128 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease [128 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3,954 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security InRelease [128 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [1,114 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [276 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 DEP-11 Metadata [212 B]
Get:9 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1,262 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [824 kB]
Get:11 http://security.ubuntu.com/ubuntu focal-security/main i386 Packages [881 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [445 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:14 http://in.archive.ubuntu.com/ubuntu focal-backports/main amd64 DEP-11 Metadata [7,952 B]
Get:15 http://in.archive.ubuntu.com/ubuntu focal-backports/restricted amd64 DEP-11 Metadata [216 B]
Get:16 http://in.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [30.5 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 DEP-11 Metadata [212 B]
Get:18 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [3,564 kB]
Get:19 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [74.7 kB]
Get:20 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 DEP-11 Metadata [212 B]
Get:21 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [1,040 kB]
Get:22 http://security.ubuntu.com/ubuntu focal-security/universe i386 Packages [698 kB]
Get:23 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [160 kB]
Get:24 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 DEP-11 Metadata [940 B]
Fetched 14.7 MB in 15s (1,004 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
11 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

## Step 2: Install Required Dependencies

Make sure curl is installed (used to download Ollama):

sudo apt install curl

```
step@step-HP-ProDesk-400-G5-SFF:~$ sudo apt install curl
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gir1.2-goa-1.0 libfwupdplugin1 libxmb1
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  curl
0 upgraded, 1 newly installed, 0 to remove and 11 not upgraded.
Need to get 162 kB of archives.
After this operation, 414 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 curl amd64 7.68.0-1ubuntu2.25 [162 kB]
Fetched 162 kB in 1s (186 kB/s)
Selecting previously unselected package curl.
(Reading database ... 189316 files and directories currently installed.)
Preparing to unpack .../curl_7.68.0-1ubuntu2.25_amd64.deb ...
Unpacking curl (7.68.0-1ubuntu2.25) ...
Setting up curl (7.68.0-1ubuntu2.25) ...
Processing triggers for man-db (2.9.1-1) ...
```

## Step 3: Install Ollama (LLaMA 3 Runner)

Ollama is the easiest tool to run LLaMA 3 locally:

curl https://ollama.ai/install.sh | sh

```
step@step-HP-ProDesk-400-G5-SFF:~$ curl -fsSL https://ollama.com/install.sh | sh
>>> Installing ollama to /usr/local
>>> Downloading Linux amd64 bundle
##### 100.0%
>>> Creating ollama user...
[sudo] password for step:
>>> Adding ollama user to render group...
>>> Adding ollama user to video group...
>>> Adding current user to ollama group...
>>> Creating ollama systemd service...
>>> Enabling and starting ollama service...
Created symlink /etc/systemd/system/default.target.wants/ollama.service → /etc/systemd/system/ollama.service.
>>> The Ollama API is now available at 127.0.0.1:11434.
>>> Install complete. Run "ollama" from the command line.
WARNING: No NVIDIA/AMD GPU detected. Ollama will run in CPU-only mode.
```

After installation, you can check if it worked:

ollama --version

```
step@step-HP-ProDesk-400-G5-SFF:~$ ollama --version
ollama version is 0.9.5
```

## Step 4: Run LLaMA 3 Model

To download and run LLaMA 3 (for example, the 8B model), use:

ollama run llama3

This command:

- Downloads the model (first time only)
- Starts a chat in your terminal

```
step@step-HP-ProDesk-400-G5-SFF:~$ ollama pull llama3
pulling manifest
pulling 6a0746a1ec1a: 100%
pulling 4fa551d4f938: 100%
pulling 8ab4849b038c: 100%
pulling 577073ffcc6c: 100%
pulling 3f8eb4da87fa: 100%
verifying sha256 digest
writing manifest
success
```

## Step 5: Chat with LLaMA 3

Now that it's running, simply start typing questions or prompts directly into your terminal — just like using ChatGPT.

```
step@step-HP-ProDesk-400-G5-SFF:~$ ollama run llama3
>>> what is ai
A great question!

Artificial Intelligence (AI) refers to the development of computer systems that can perform tasks that would typically require human intelligence, such as:

1. Learning: AI systems can learn from data and improve their performance over time.
2. Reasoning: AI systems can draw conclusions based on given information and make decisions.
3. Problem-solving: AI systems can find solutions to complex problems.
4. Perception: AI systems can interpret and understand sensory information, such as images, speech, or text.

AI systems use various techniques, including:

1. Machine learning: AI systems learn from data and improve their performance over time.
2. Deep learning: A subset of machine learning that uses neural networks to analyze complex data.
3. Natural language processing (NLP): AI systems can understand, generate, and process human language.
4. Computer vision: AI systems can interpret and understand visual information from images or videos.
```