

Installation of Anaconda and Jupyter Notebook

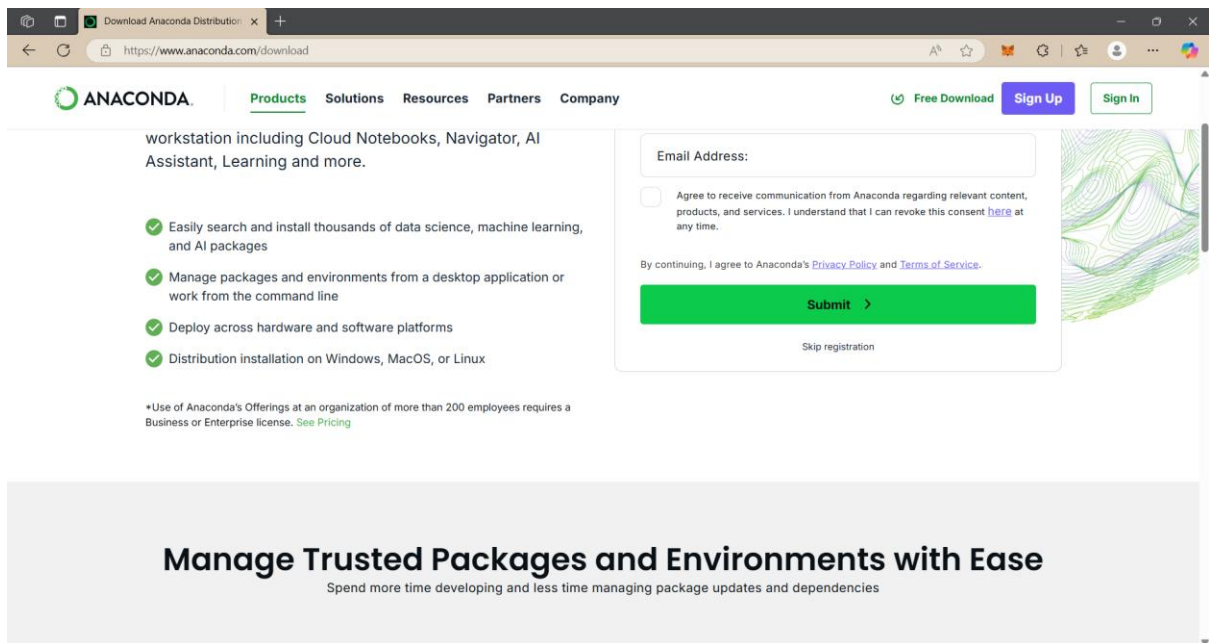


Fig 1: Official website of Anaconda. Give your email address here of the filed to go to the download page.

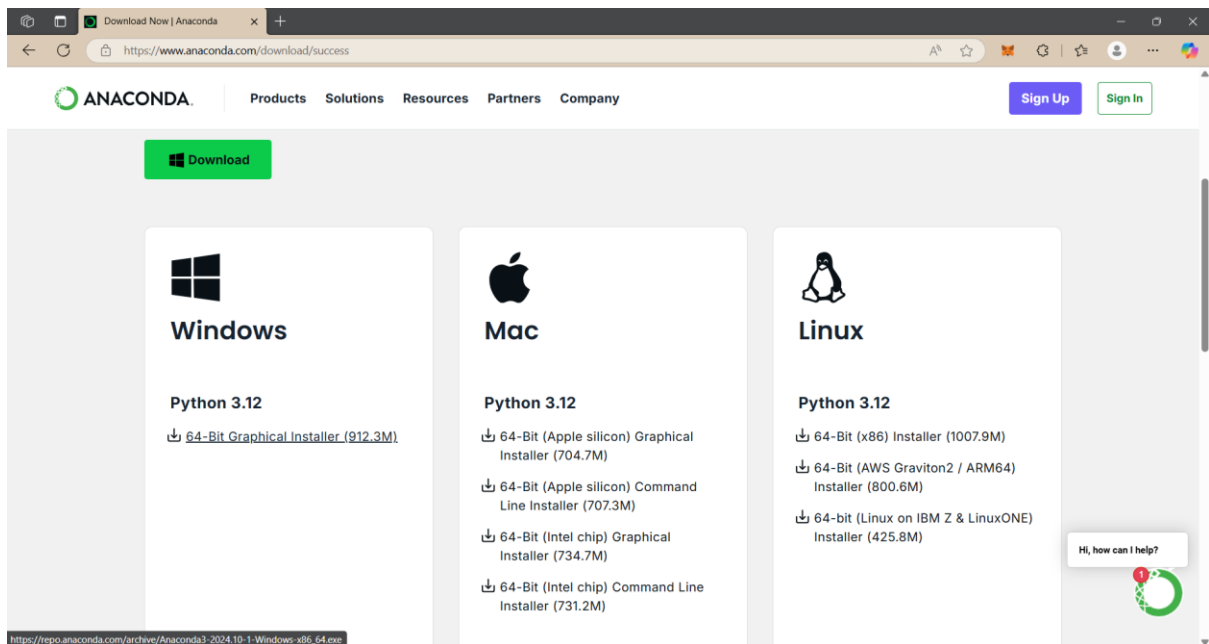


Fig 2: Download page for Anaconda where links for download are available.

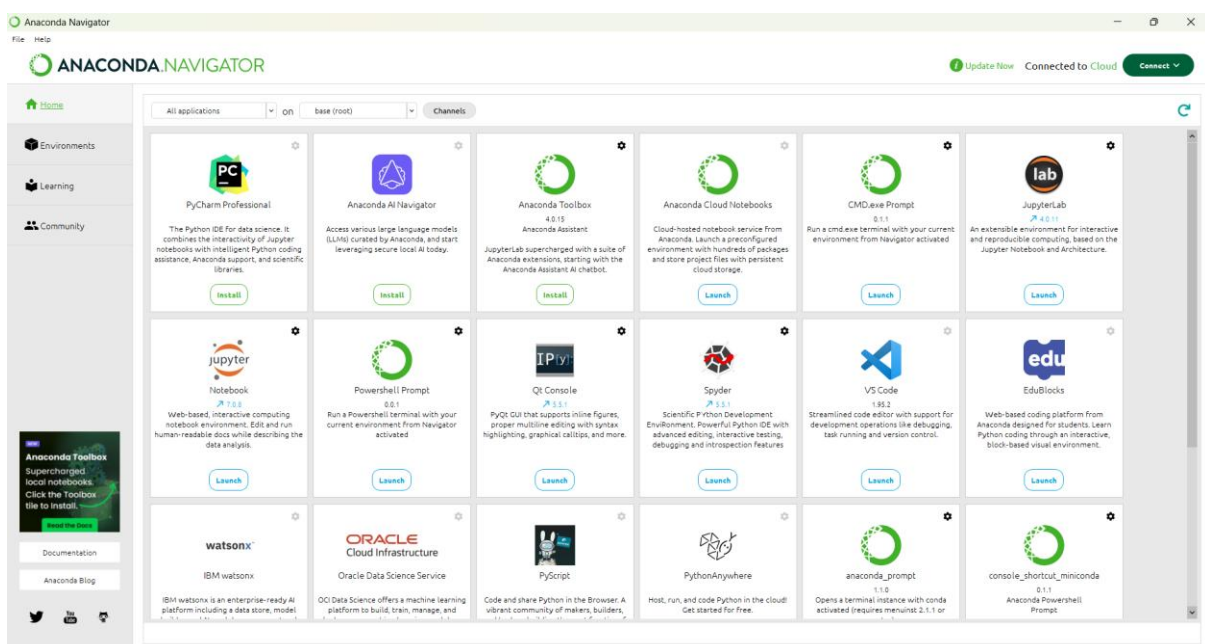
My System Specifications:

OS	Windows 11
RAM	16 GB
GPU	NVIDIA Geforce GTX 1050
SSD	500 GB
PROCESSOR	Intel i5 12 th gen

Choose the windows version as per system specifications.



Fig 3 : Installation page for Anaconda Navigator



The screenshot shows the Anaconda Navigator application. On the left, the 'Environments' sidebar lists several environments, with 'gpuenv1' selected. The main window displays the 'Channels' tab for the selected environment, showing a list of installed and available packages. The table includes columns for Name, Description, and Version. The 'Update Now' button is prominently displayed in the top right corner of the main panel.

Name	Description	Version
☒ _anaconda_depends	☐ Simplifies package management and deployment of anaconda	2024.06.0
☒ abseil-cpp	☐ Abseil common libraries (C++)	202111.0
☒ aiohttp	☐ Async client for aws services using boto3 and aiohttp	2.12.3
☒ aiohttp	☐ Async http client/server framework (asyncio)	3.9.5
☒ aiortools	☐ Asyncio version of the standard multiprocessing module	0.7.1
☒ aiosignal	☐ Aiosignal: a list of registered asynchronous callbacks	1.2.0
☒ alabaster	☐ Lightweight, configurable sphinx theme	0.7.16
☒ altair	☐ A declarative statistical visualization library for python	5.0.1
☒ anaconda-anon-usage	☐ Basic anonymous telemetry for conda clients	0.4.4
☒ anaconda-catalogs	☐ Client library to interface with anaconda cloud catalogs service	0.2.0
☒ anaconda-client	☐ Anaconda.org command line client library	1.12.3
☒ anaconda-cloud-auth	☐ A client auth library for anaconda cloud apis	0.5.1
☒ anaconda-project	☐ Tool for encapsulating, running, and reproducing data science projects	0.11.1
☒ annotated-types	☐ Reusable constraint types to use with typing-annotated	0.6.0
☒ anyio	☐ High level compatibility layer for multiple asynchronous event loop implementations on python	4.3.0
☒ aom	☐ Alliance for open media video codec	3.6.0

At the bottom of the main panel, there is a status bar indicating 'Loading packages of C:\Users\jhrin\anaconda2\envs\gpuenv1...' and a 'Cancel' button.

```
C:\Windows\system32\cmd.exe X + v
--exists-action <action> Default action when a path already exists: (s)witch, (i)gnore, (w)ipe, (b)ackup,
(a)bort.
--trusted-host <hostname> Mark this host or host:port pair as trusted, even though it does not have valid or any
HTTPS.
--cert <path> Path to PEM-encoded CA certificate bundle. If provided, overrides the default. See 'SSL
Certificate Verification' in pip documentation for more information.
--client-cert <path> Path to SSL client certificate, a single file containing the private key and the
certificate in PEM format.
--cache-dir <dir> Store the cache data in <dir>.
--no-cache-dir Disable the cache.
--disable-pip-version-check Don't periodically check PyPI to determine whether a new version of pip is available for
download. Implied with --no-index.
--no-color Suppress colored output.
--no-python-version-warning Silence deprecation warnings for upcoming unsupported Python versions.
--use-feature <feature> Enable new functionality, that may be backward incompatible.
--use-deprecated <feature> Enable deprecated functionality, that will be removed in the future.

(gpuenv1) C:\Users\chris>pip -version

Usage:
  pip <command> [options]

no such option: -e

(gpuenv1) C:\Users\chris>pip --version
pip 24.2 from C:\Users\chris\AppData\Roaming\Python\Python312\site-packages\pip (python 3.12)

(gpuenv1) C:\Users\chris>
```

Fig 6: Terminal running the current python environment.

```
C:\Windows\system32\cmd.exe: x + v
--no-python-version-warning Silence deprecation warnings for upcoming unsupported Pythons.
--use-feature <feature> Enable new functionality, that may be backward incompatible.
--use-deprecated <feature> Enable deprecated functionality, that will be removed in the future.

(gpuenv1) C:\Users\chris>pip -version

Usage:
  pip <command> [options]

no such option: -e

(gpuenv1) C:\Users\chris>pip --version
pip 24.2 from C:\Users\chris\AppData\Roaming\Python\Python312\site-packages\pip (python 3.12)

(gpuenv1) C:\Users\chris>cuda
'cuda' is not recognized as an internal or external command,
operable program or batch file.

(gpuenv1) C:\Users\chris>nvcc
nvcc fatal : No input files specified; use option --help for more information

(gpuenv1) C:\Users\chris>nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2024 NVIDIA Corporation
Built on Fri_Jun_14_16:44:19_Pacific_Daylight_Time_2024
Cuda compilation tools, release 12.6, V12.6.20
Build cuda_12.6.r12.6/compiler.34431801_0

(gpuenv1) C:\Users\chris>
```

nvcc: NVIDIA (R) Cuda compiler driver

Copyright (c) 2005-2024 NVIDIA Corporation

Built on Fri_Jun_14_16:44:19_Pacific_Daylight_Time_2024

Cuda compilation tools, release 12.6, V12.6.20

Build cuda_12.6.r12.6/compiler.34431801_0

Fig 8: Terminal showing Cuda version installed

VS code installation

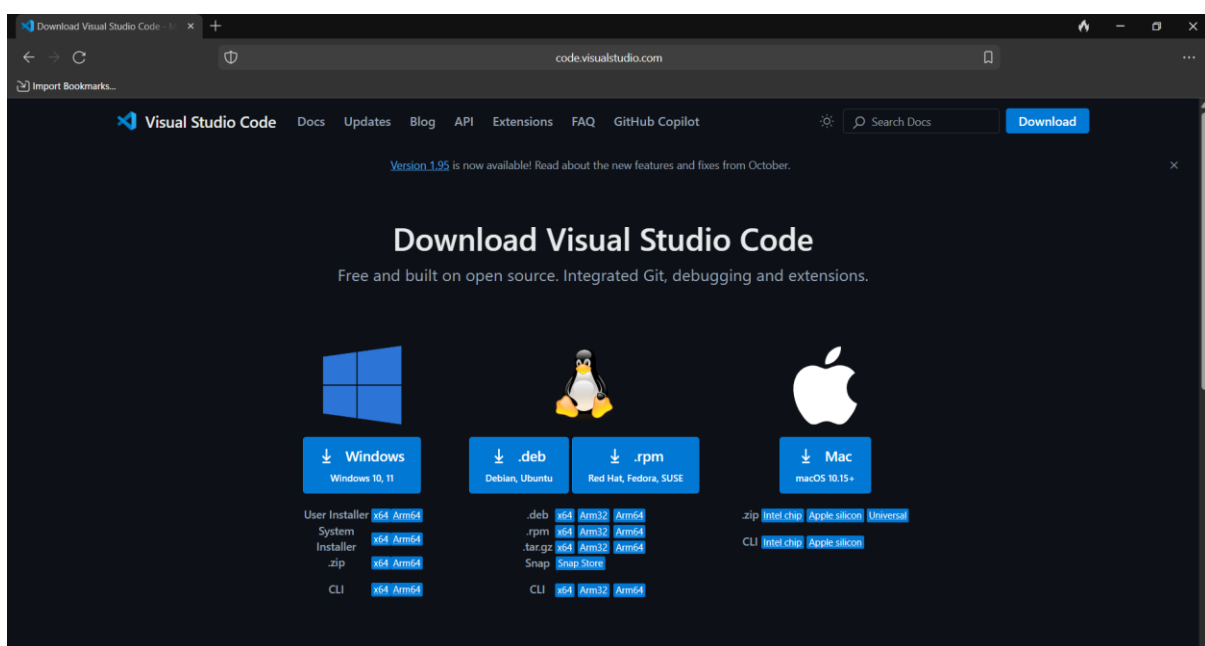


Fig 9: VS code download page.

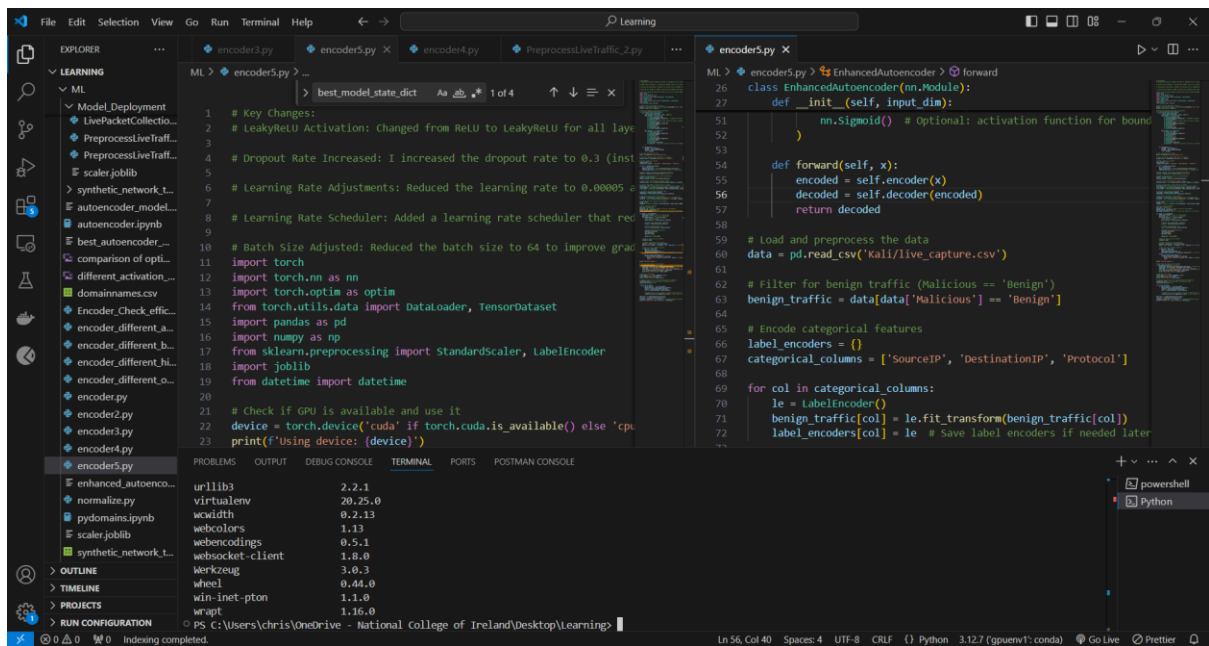


Fig 10: VS code running the code.

Google Colab Configuration

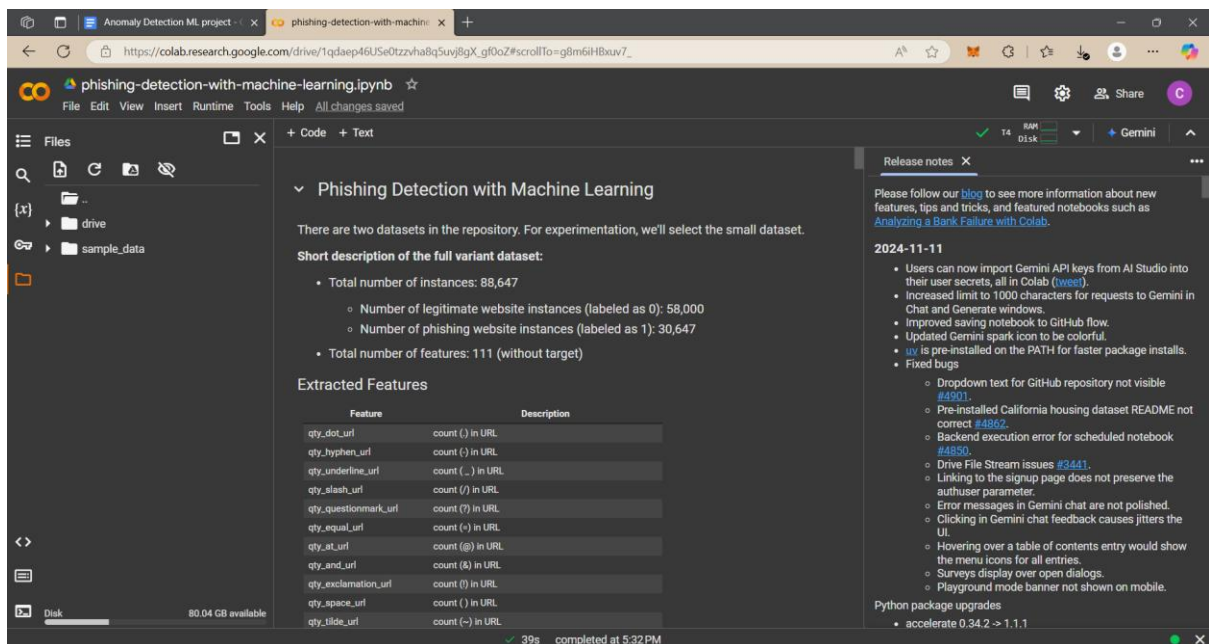


Fig 11: Colab file containing the source for project.

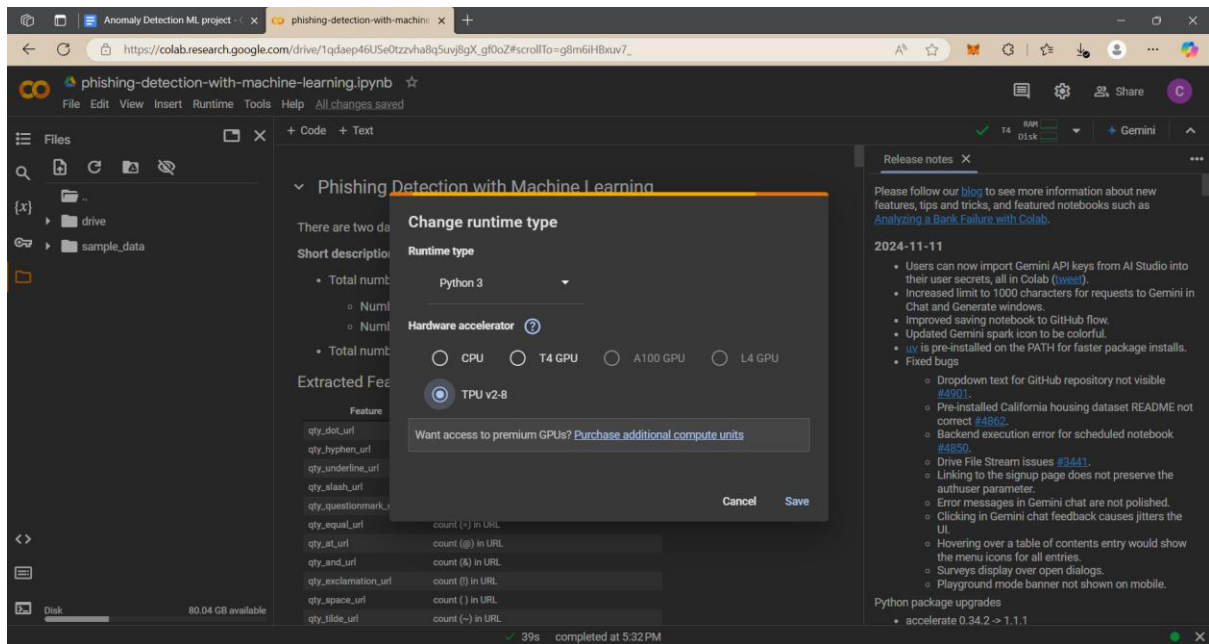


Fig 12: Colab Configuration to use GPU.

GPU Configuration

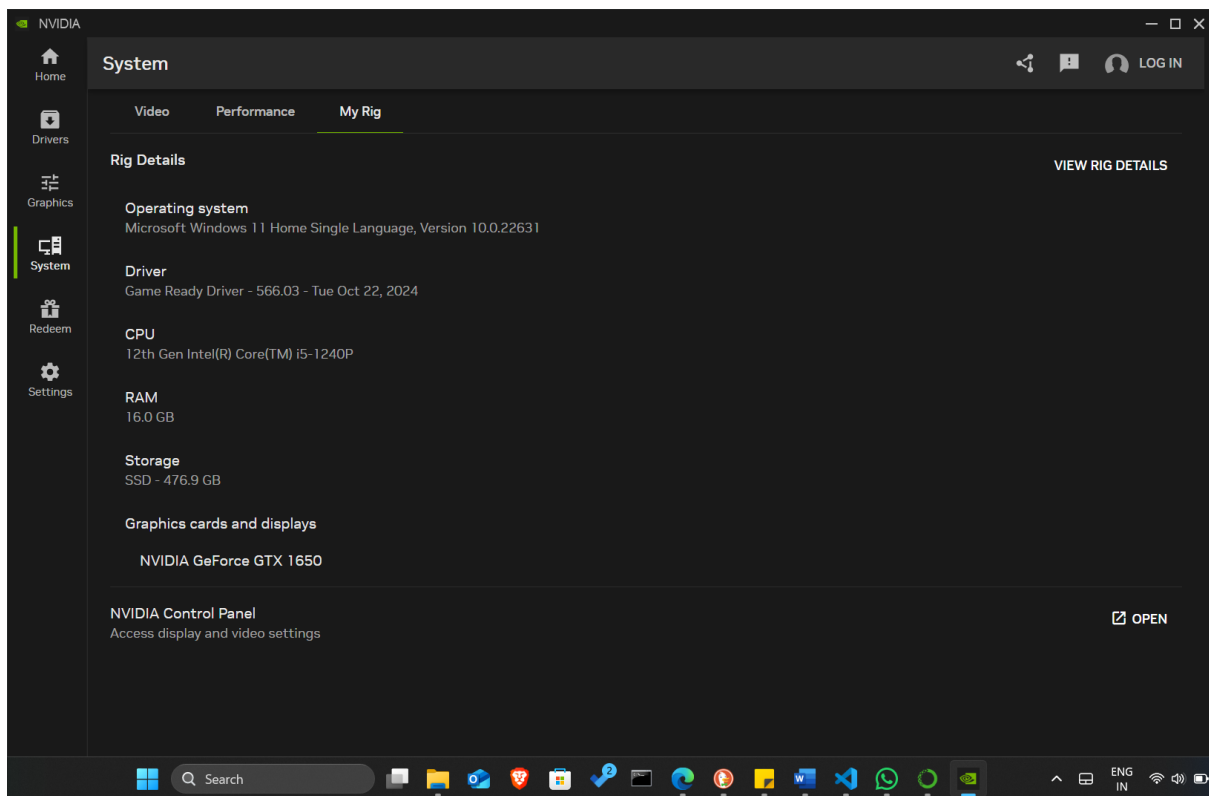


Fig 13: System configuration for the project purpose.

Installation of Packages

```
C:\Windows\system32\cmd.exe: x + v
(gpuenv1) C:\Users\chris>pip list
Package Version
-----
absl-py 2.1.0
anyio 4.3.0
appdirs 1.4.4
argon2-cffi 23.1.0
argon2-cffi-bindings 21.2.0
arrow 1.3.0
asttokens 2.4.1
astunparse 1.6.3
async-lru 2.0.4
attrs 23.2.0
Babel 2.15.0
beautifulsoup4 4.12.3
bleach 6.1.0
Brotli 1.0.9
bs4 0.0.2
certifi 2024.2.2
cffi 1.16.0
charset-normalizer 3.3.2
click 8.1.7
colorama 0.4.6
comm 0.2.2
contourpy 1.2.1
cryptography 43.0.0
cyclar 0.12.1
debugpy 1.8.1
decorator 5.1.1
```

Fig 14: Python environment listing all the packages installed.

Library	Version	Library	Version
absl-py	2.1.0	ipython	8.24.0
anyio	4.3.0	isoduration	20.11.0
appdirs	1.4.4	jedi	0.19.1
argon2-cffi	23.1.0	Jinja2	3.1.4
argon2-cffi-bindings	21.2.0	joblib	1.4.0
arrow	1.3.0	json5	0.9.25
asttokens	2.4.1	jsonpointer	2.4
astunparse	1.6.3	jsonschema	4.22.0
async-lru	2.0.4	jsonschema-specifications	2023.12.1
attrs	23.2.0	jupyter_client	8.6.1
Babel	2.15.0	jupyter_core	5.7.2
beautifulsoup4	4.12.3	jupyter-events	0.10.0
bleach	6.1.0	jupyter-lsp	2.2.5
Brotli	1.0.9	jupyter_server	2.14.0
bs4	0.0.2	jupyter_server_terminals	0.5.3
certifi	2024.2.2	jupyterlab	4.2.0
cffi	1.16.0	jupyterlab_pygments	0.3.0
charset-normalizer	3.3.2	jupyterlab_server	2.27.1
click	8.1.7	keras	3.5.0

Library	Version	Library	Version
colorama	0.4.6	kiwisolver	1.4.5
comm	0.2.2	libclang	18.1.1
contourpy	1.2.1	lxml	5.3.0
cryptography	43.0.0	Markdown	3.6
cycler	0.12.1	markdown-it-py	3.0.0
debugpy	1.8.1	MarkupSafe	2.1.5
decorator	5.1.1	matplotlib	3.8.4
defusedxml	0.7.1	matplotlib-inline	0.1.7
distlib	0.3.8	mdurl	0.1.2
english-words	2.0.1	mistune	3.0.2
executing	2.0.1	mkl_fft	1.3.10
fastjsonschema	2.19.1	mkl_random	1.2.7
filelock	3.13.1	mkl-service	2.4.0
flatbuffers	24.3.25	ml-dtypes	0.4.0
fonttools	4.51.0	mpmath	1.3.0
fqdn	1.5.1	namex	0.0.8
fsspec	2024.9.0	nbclient	0.10.0
gast	0.6.0	nbconvert	7.16.4
google-pasta	0.2.0	nbformat	5.10.4
grpcio	1.65.4	nest-asyncio	1.6.0
h11	0.14.0	networkx	3.2.1
h5py	3.11.0	nlTK	3.8.1
httpcore	1.0.5	notebook_shim	0.2.4
httpx	0.27.0	numpy	1.26.4
idna	3.7	opt-einsum	3.3.0

VM Installation and configuration

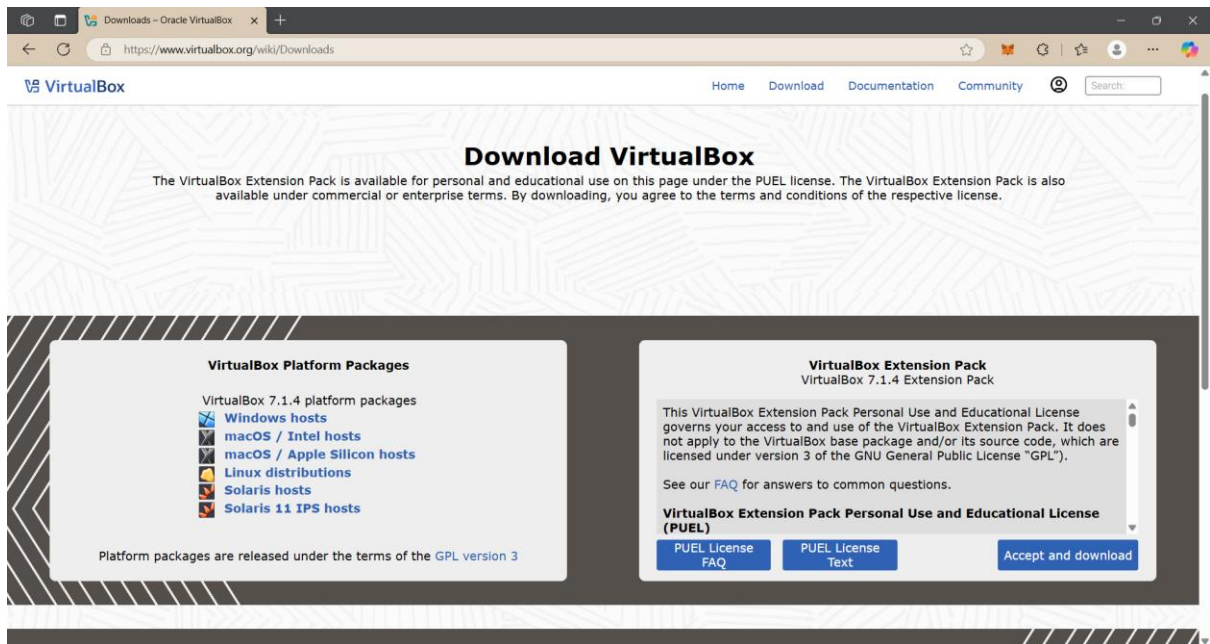


Fig 15: Virtual Box download page from internet.

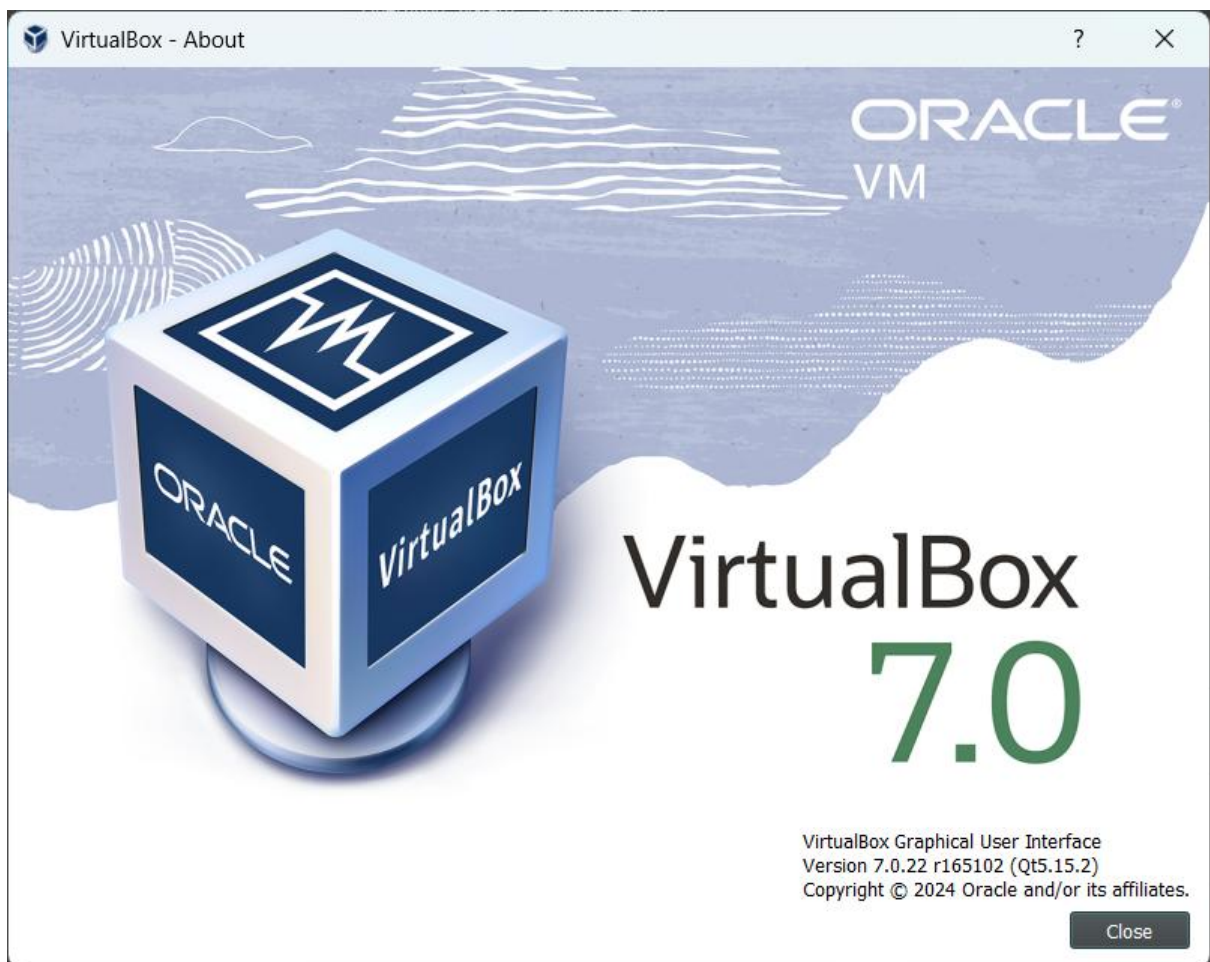


Fig 16: Virtual Box running.

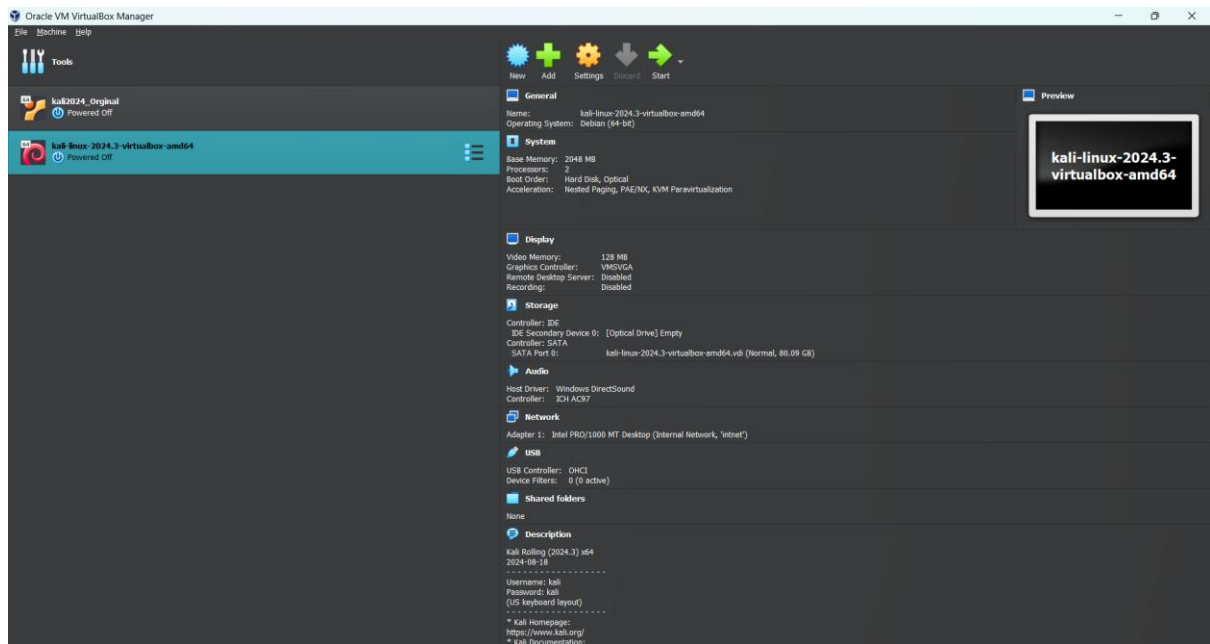


Fig 18: VM listing the virtual machine created for the research purpose.