How to Set Up a Computer Vision Environment on Windows and Linux

# AIM:

This document guides users through the process of setting up a computer vision environment using OpenCV on both Windows and Linux systems.

# System Requirements:

## Anaconda (2025 Version)

- Supported OS:  
 - Windows 10+  
 - macOS 10.15+/11+  
 - Linux (Ubuntu/CentOS 7+)  
- CPU: 64-bit (x86\_64, ARM, s390x)  
- Disk Space: Minimum 5 GB free

## OpenCV

- Supported Python Versions: 3.7 to 3.12  
- Auto-Installed Libraries:  
 - numpy  
 - libjpeg  
 - ffmpeg  
- Disk Space: Minimum 500 MB for core features

## GPU (Optional but Recommended)

- Minimum: GTX 1650 (4 GB)  
- Recommended: RTX 3060 (12 GB) or better

# 1. OpenCV Environment Setup in Windows

## Step 1: Software Installation

Download and install the latest version of Anaconda Navigator.  
Run the .exe file and follow the prompts in the installer wizard.

## Step 2: Setting Up a Virtual Environment

1. Open Anaconda Prompt  
2. Run the following commands:

conda create --name opencv-env  
conda activate opencv-env  
conda install -c conda-forge opencv

3. To verify the installation:

import cv2  
print(cv2.\_\_version\_\_)

# 2. OpenCV Environment Setup in Linux

## Step 1: Software Installation

Download and run the Anaconda installer:

bash ~/Downloads/filename.sh

Follow the on-screen instructions and accept the license agreements.  
Set the path using:

source ~/.bashrc

## Step 2: Setting Up a Virtual Environment

1. Open the terminal (Ctrl + Shift + P)  
2. Run the following commands:

conda create --name opencv-env  
conda activate opencv-env  
conda install -c conda-forge opencv

## Step 3: Verify Installation

import cv2 as cv  
cv.\_\_version\_\_

# SUMMARY:

- Successfully demonstrated how to set up a Computer Vision environment on both Windows and Linux.  
- Used Anaconda Navigator to manage installations and environments.  
- Installed OpenCV via the conda-forge channel.  
- Verified the installation using Python.  
- Emphasized system requirements and optional GPU support.  
- Reinforced the importance of a structured and reproducible setup for Computer Vision projects.

# THANK YOU