

# Guidelines for Environment Settings

CSED441 - Introduction to Computer Vision

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## Conda Environment (Anaconda)

For the assignments, we recommend you to use **Anaconda** to configure the programming environment. Anaconda is a Python distribution that simplifies the management of packages and development environments for data science and machine learning. By creating an isolated virtual environment for each project, you can prevent package version conflicts.

### 1. Installing Anaconda

- a. Go to the [Official Anaconda Website](#) and download the latest version of the installer for your OS (Windows, macOS, or Linux).
- b. Run the downloaded installer and follow the on-screen instructions.
  - **For Windows:** During the installation process, under 'Advanced Options', it is recommended to check the box for '**Add Anaconda3 to my PATH environment variable**'. This allows you to use the `conda` command from any terminal.
  - **For Mac/Linux:** If you encounter a `conda: command not found` error after typing `conda` command, it means your shell cannot locate the Anaconda executable. Follow the below instructions to add its path to your shell's configuration file.
    - Open the config file: `vi ~/.bash_profile` (or `~/.bashrc`)
    - Go to the end of the file and add the following line:  
`export PATH="[path/to/your/anaconda3]/bin:$PATH"`
    - Save and apply the changes: `source ~/.bash_profile`

### 2. Creating a virtual environment

- a. Launch the terminal.
- b. Create a conda virtual environment by entering the following command:  
`conda create -n {your_env_name} python=3.10`

- For example, `conda create -n csed441 python=3.10` will create an environment named 'csed441' with Python 3.10.
- If a prompt like `Proceed ([y]/n)?` appears, type `y` and press Enter.

### 3. Activating the virtual environment

- Launch the terminal.
- Activate the environment you created with the following command:  
`conda activate {your_env_name}`
  - For example, you can activate the 'csed441' environment by:  
`conda activate csed441`
  - Once activated, you will see the environment's name, for example, `(csed441)`, at the beginning of your terminal prompt. All subsequent work should be done in this activated environment.

## Required Libraries

With your environment activated, install the following libraries required for the assignments.

Enter the following command in your terminal to install all the necessary libraries at once.

- `conda install numpy pillow matplotlib`
- **Verify installation:** After the installation is complete, you can run the command to see a list of all packages installed in your environment.

To run Jupyter Notebook (.ipynb) files, you may also need to install the Jupyter library.

- `conda install jupyter notebook`

Or, you can use the following command to install all necessary libraries at once:

- `conda env update --file environment.yml`