[Linux (Debian/Ubuntu)] Setup | Pelatihan Genap 2025: Image Processing

NOTE!!!

- I highly encourage you to use Linux and get familiar with it. Even if you're using Windows, you'll install WSL (Windows Subsystem for Linux) to get a similar workflow as Linux.
- If you have questions, feel free to ask in the WhatsApp group chat or Microsoft Teams.

Linux Setup

- **Repository Update**

  1. Open the Terminal (`Ctrl + Alt + T`)
  2. Run these commands:
     ```
     sudo apt update
     sudo apt upgrade
     ```

- **Installing Miniconda**

  1. Open the Terminal (`Ctrl + Alt + T`)
  2. Download the Linux Miniconda Installer
     ```
     curl https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh -o ~/Downloads/Miniconda3-latest-Linux-x86_64.sh
     ```
  3. Run the installer
     ```
     bash ~/Downloads/Miniconda3-latest-Linux- x86_64.sh
     ```
  4. Follow the installer instructions
  5. Initialize the Miniconda:
     ```
     source ~/bashrc
     ```
     or
     ```
     conda activate base
     ```
     | **Side note**: `base` is the default environment, made by the Miniconda
  6. Check the installation result
     ```
     conda --version
     ```
  7. Download the environment file
     ```
     wget -P ~/Downloads https://raw.githubusercontent.com/sulaimanfawwazak/Pelatihan-Vision-2025/main/environment.yml
     ```
  8. Create the environment
     ```
     conda env create --name imageproc -f ~/Downloads/environment.yml
     ```
  9. Activate the environment
     ```
     conda activate imageproc
     ```

- **Setting Up Jupyter Notebook**
  1. Open the Terminal (`Ctrl + Alt + T`)
  2. Activate the environment

     ```
     conda activate imageproc
     ```
  3. Install Jupyter

     ```
     conda install -y jupyter
     ```
  4. Install Conda Integration

     ```
     conda install -c conda-forge nb_conda
     ```
  5. Install OpenCV

     ```
     conda install -c conda-forge opencv
     ```
  6. Setup the Jupyter Kernel

     ```
     python -m ipykernel install --user --name imageproc --display-name
     "Python (Image Processing)"
     ```
  7. Run the Jupyter Notebook

     ```
     mkdir pelatihan-genap
     cd pelatihan-genap
     jupyter notebook
     ```

- **Installing Visual Studio Code (VS Code)**
  1. Open the Terminal (`Ctrl + Alt + T`)
  2. Install the VS Code

     ```
     sudo snap install --classic code
     ```
  3. Open the VS Code
  4. Open the extension menu
  5. Install these extensions:
     - Jupyter
     - Jupyter Keymap
     - Jupyter Notebook Renderes
     - Jupter Cell Tags
     - Jupyter Slide Show

- **Additional Setup**
  1. Open the Terminal (`Ctrl + Alt + T`)
  2. Install these additional packages:

     ```
     sudo apt install python-is-python3
     sudo apt install python3-pip
     ```
  3. Deactivate the `base` environment by default when opening Terminal

     ```
     conda config --set auto_activate_base false
     ```
  4. Create aliases to shorten the commands

     ```
     echo "alias ca="conda activate" >> ~/.bashrc
     echo "alias fixopenssl=\"export LD_LIBRARY_PATH=/lib/x86_64-linux-
     gnu:$LD_LIBRARY_PATH\"" >> ~/.bashrc
     ```

Resources

- https://github.com/jeffheaton/t81_558_deep_learning/blob/master/install/manual_setup3.ipynb
- https://www.youtube.com/watch?v=eId6K8d0v6o&pp=ygUgaG93IHRvIGluc3RhbGwgd3NsIG9uIHdpbmRvd3MgMTE%3D

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