EMMETRA INTERNSHIP OPPORTUNITY

Instruction Guide

TEAM MEMBERS:

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PREREQUISITES

Matlab Version:

MATLAB 2019a or later

MATLAB Add-Ons:

- Image Processing Toolbox
- Deep Learning Toolbox
- Parallel Computing Toolbox

Python Version:

Python 3.8 or later

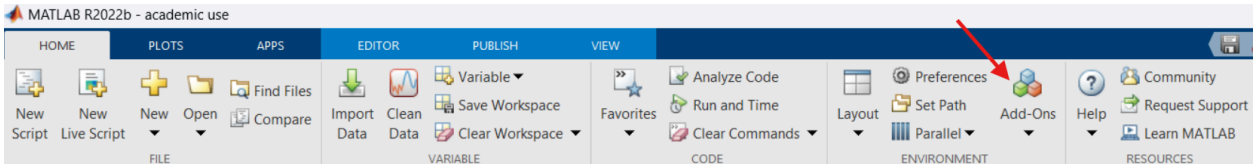
Required Python Libraries:

- OpenCV (Version 4.5.5 or later)
- Numpy (Version 1.21.5 or later)
- Pillow (Version 8.4.0 or later)
- Matplotlib (Version 3.5.0 or later)
- Streamlit (Version 1.11.0 or later)

PROCEDURE

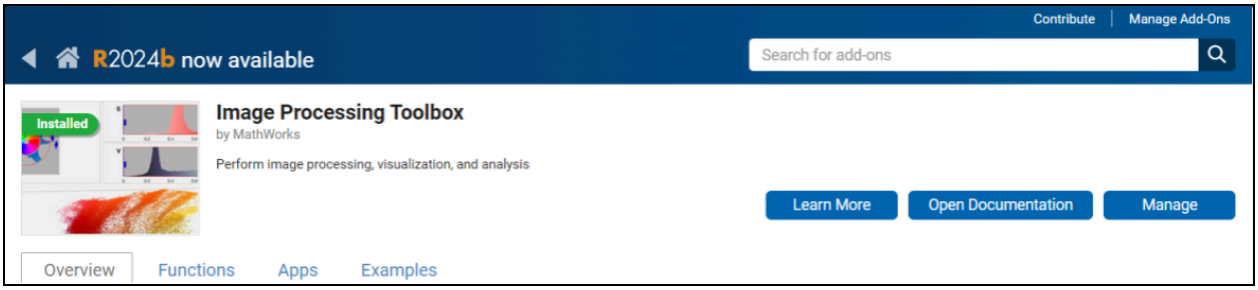
Assignment 1 & 2 :

1. Open MATLAB.
2. Click on Add-Ons.



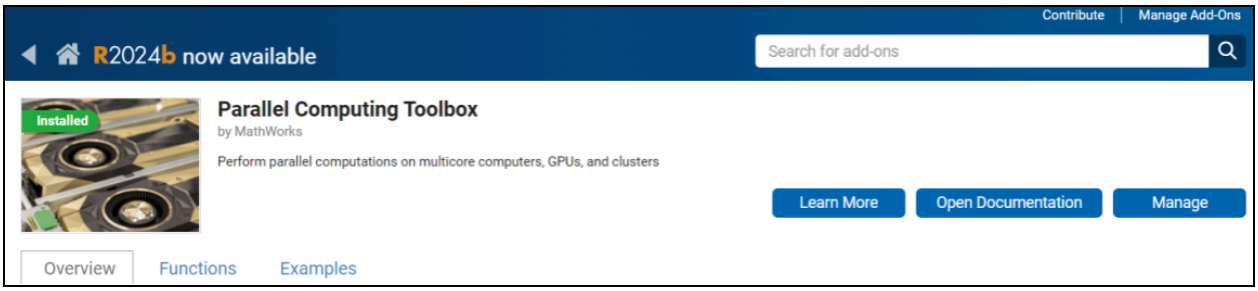
3. Search for the required toolboxes in the search bar and Install:

(a) Image Processing Toolbox



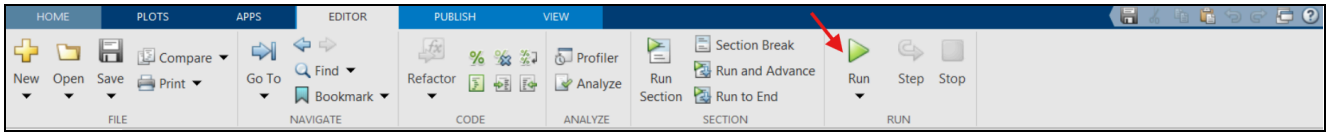
(b) Deep Learning Toolbox

(c) Parallel Computing Toolbox

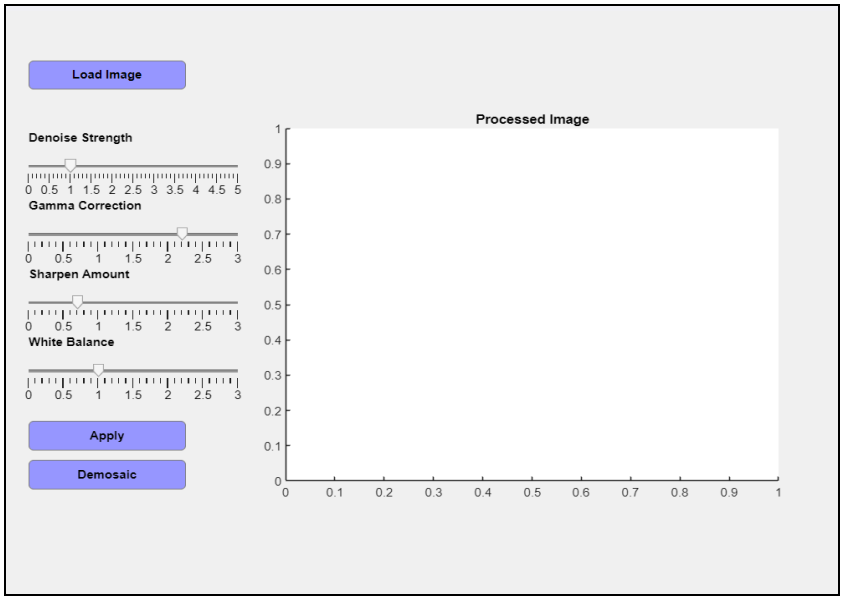


4. Close the Add-on Explorer.

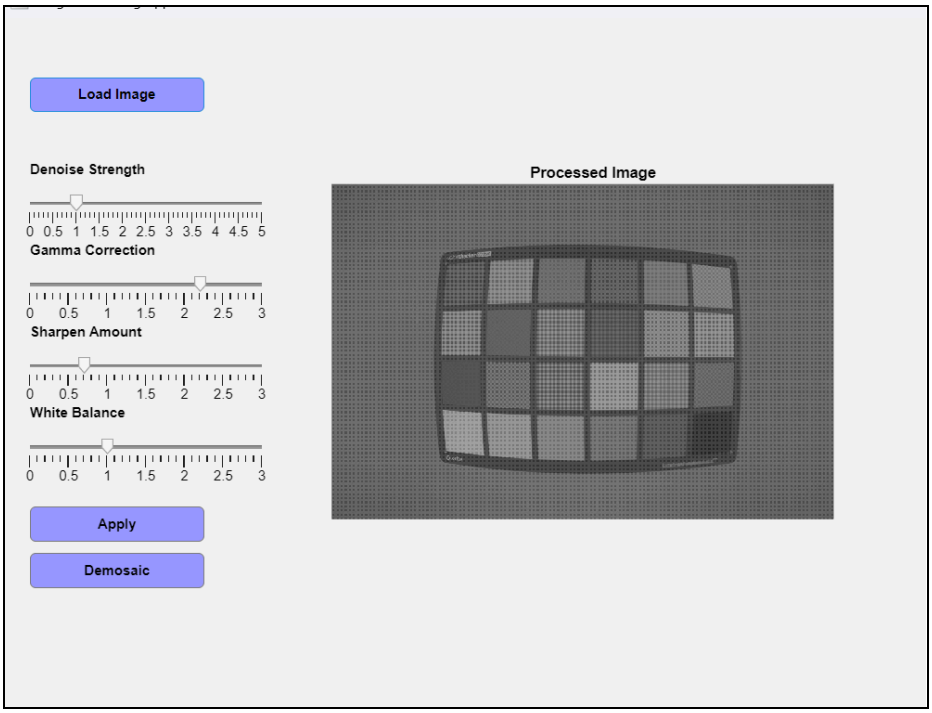
5. Open the respective file containing the code and click on Run in the Editor tab.



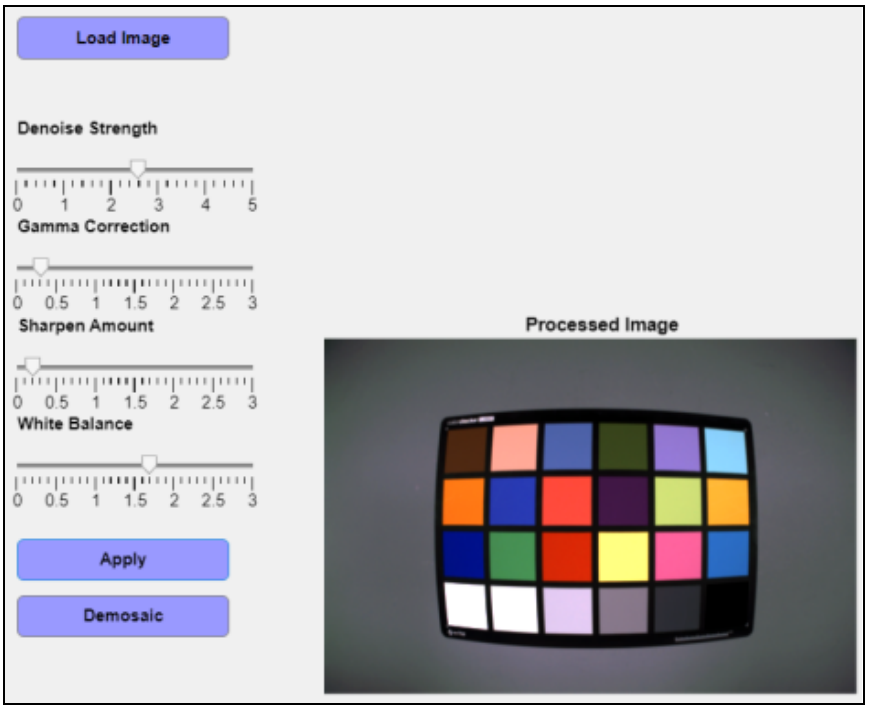
6. For Assignment 1:



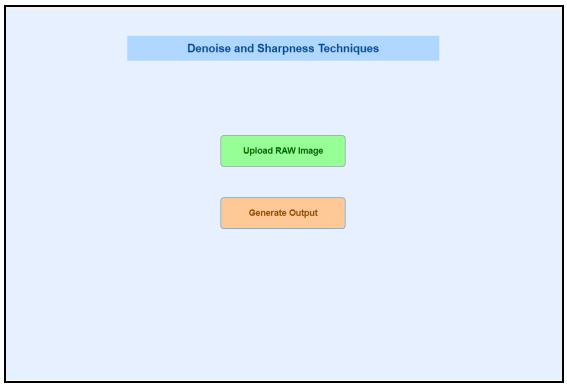
6.1. Click on load image and upload the RAW image from your system directory



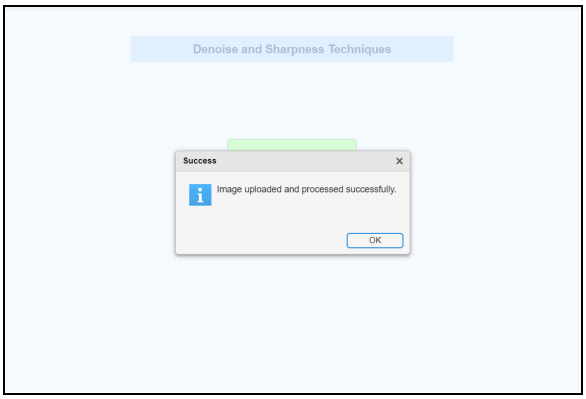
6.2. Click on demosaic and adjust the parameters through the sliders according to your desired output



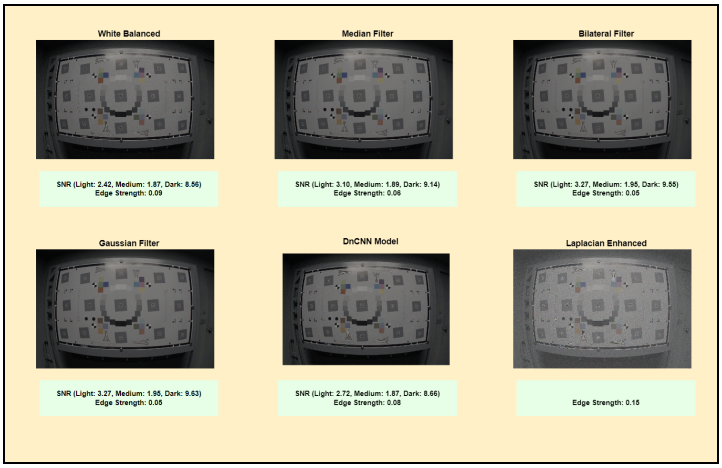
7. For Assignment 2:



7.1. Click on upload RAW Image and select the desired file from your system



7.2. Click on OK and then Generate Output to view the results (output will take around 8-10 seconds to process)

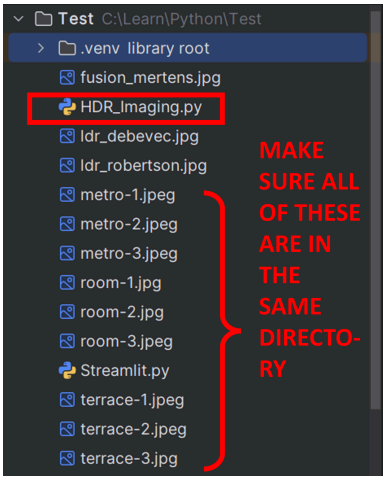


8. For Assignment 3:

8.1. Clone or download the project.

8.2. Open a terminal or command prompt, navigate to the project directory, and run:
`pip install -r requirements.txt`

8.3. Ensure the input images are placed in the same directory as the code files. The default input images referenced in the code can be found in the `test_data` folder. If you wish to use your own images, update the filenames in `HDR_Imaging.py` accordingly to match your image file names.



8.4. Execute the main script (`HDR_Imaging.py`), which automatically starts the Streamlit application:
```
python HDR_Imaging.py
```

8.5. The Streamlit application will open in your default browser (or provide a URL in the terminal to access it).

8.6. Use the **View Debevec Output**, **View Robertson Output** and **View Mertens Output** buttons to explore the HDR outputs.