

# **EMMETRA INTERNSHIP OPPORTUNITY**

## **Instruction Guide**

### **TEAM MEMBERS:**

Srivanth Srinivasan	1RV22AI058
Anvitha Anant Rao	1RV22AI066
K.M. Amogha	1RV22AI070
Pranshu Bhatt	1RV22AI071

# PREREQUISITES

## Matlab Software

- Version 2019a or higher

## MATLAB Add-Ons:

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

## Python

- Version 3.8.0 or higher

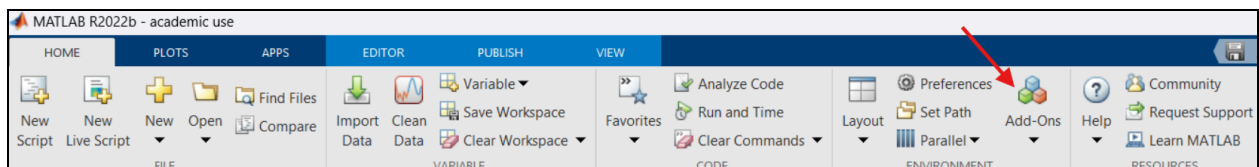
## Required Python Libraries:

- OpenCV (Version used: 4.10.0.84) or higher
- Numpy (Version used: 1.24.4) or higher
- Pillow (Version used: 10.4.0) or higher
- Matplotlib (Version used: 3.7.5) or higher
- Streamlit (Version used: 1.40.1) or higher

# PROCEDURE

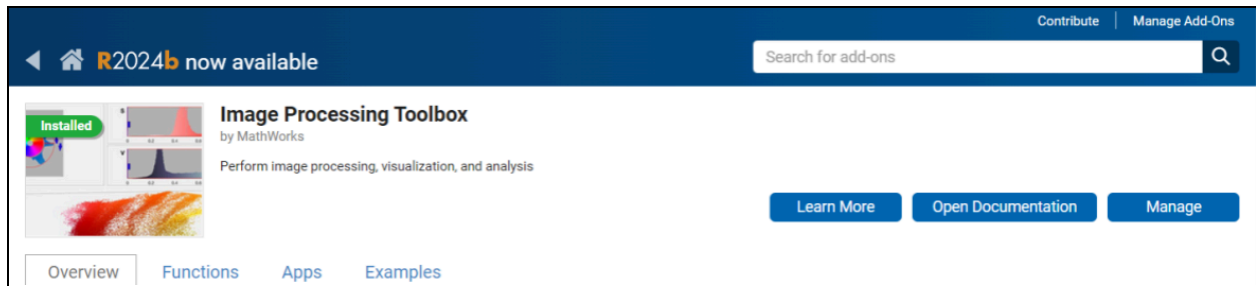
## MATLAB Setup (Steps 1-5) :

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

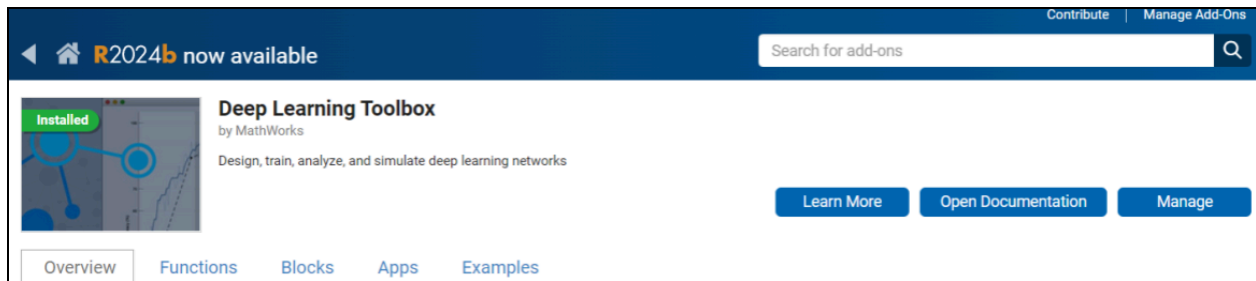


3. Search for the required toolboxes in the search bar and Install:

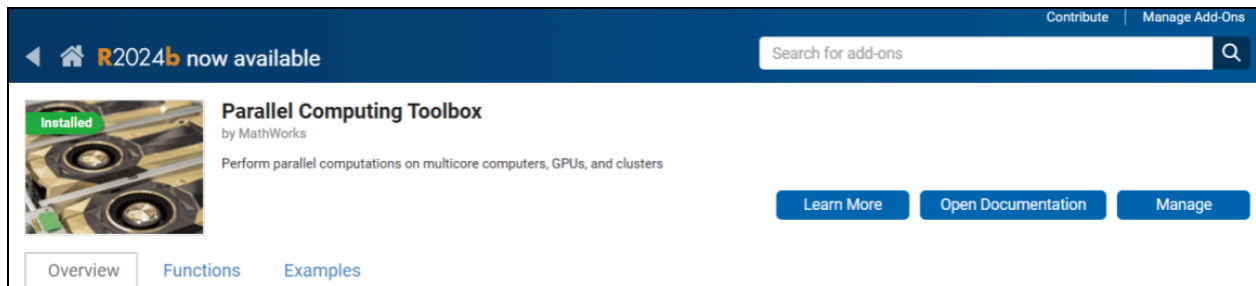
(a) Image Processing Toolbox



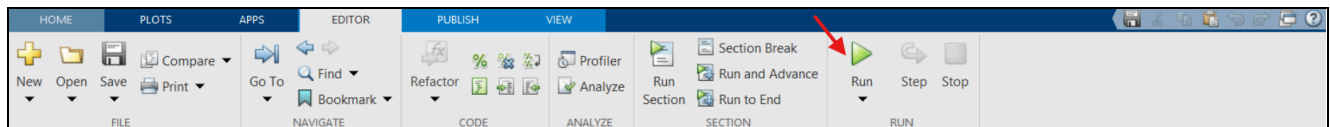
(b) Deep Learning Toolbox



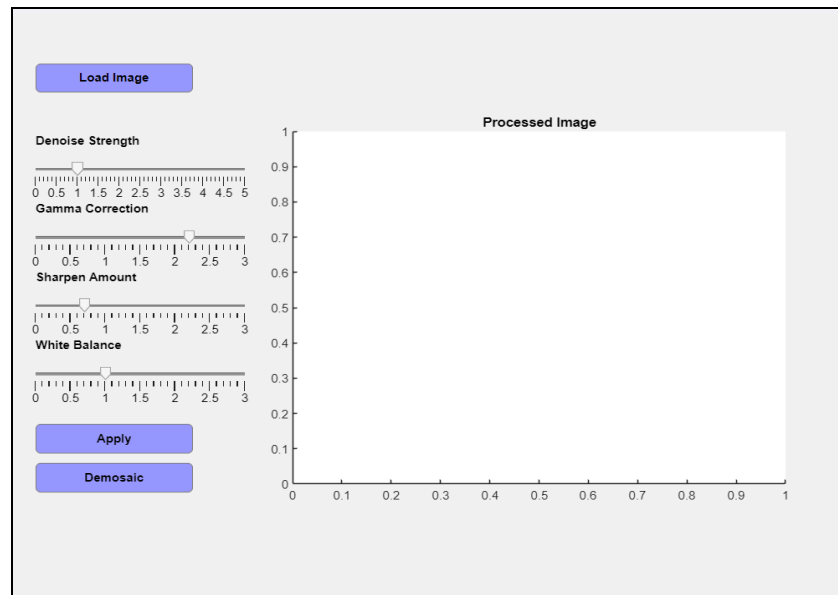
(c) Parallel Computing Toolbox



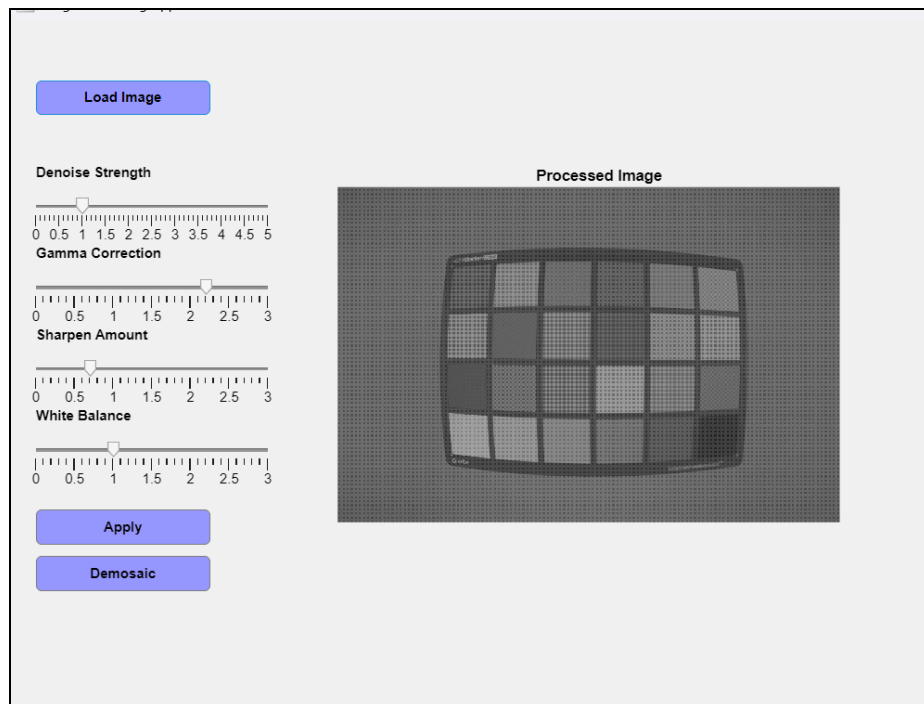
4. Close the Add-on Explorer.
5. Open the respective file containing the code and click on Run in the Editor tab.



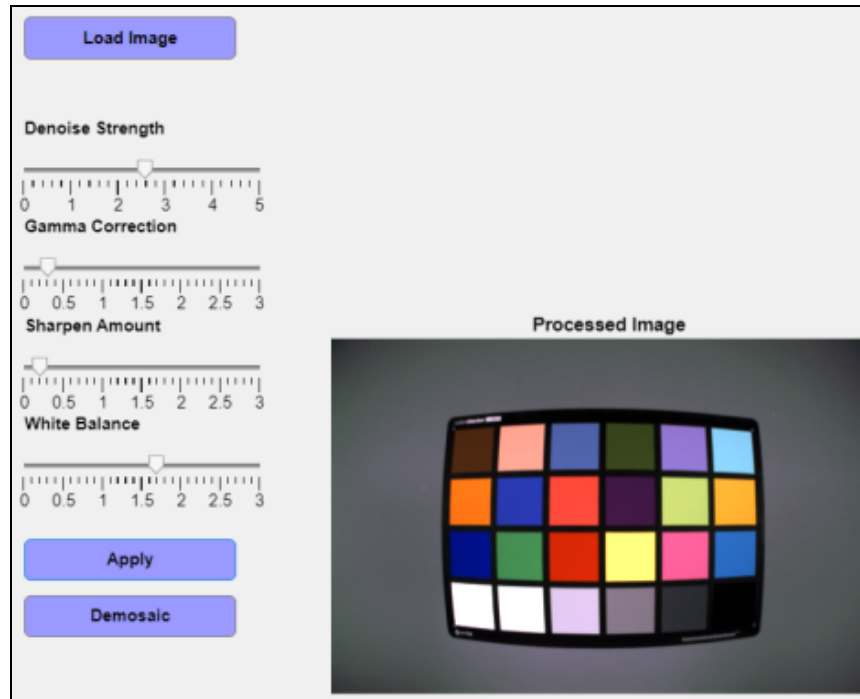
## 6. For Assignment 1:



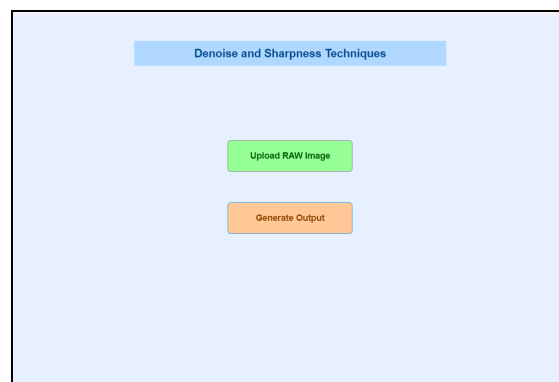
6.1. Click on load image and upload the RAW image from your system directory



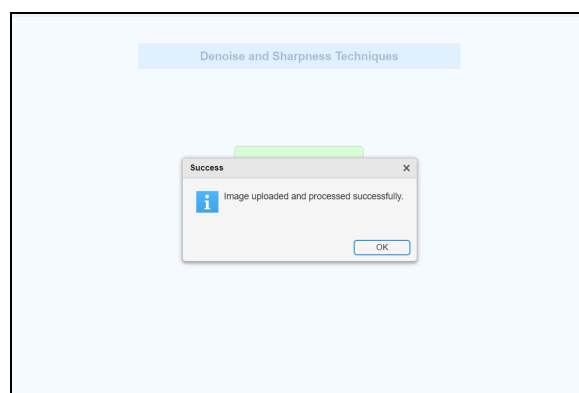
6.2. Click on demosaic and adjust the parameters through the sliders according to your desired output



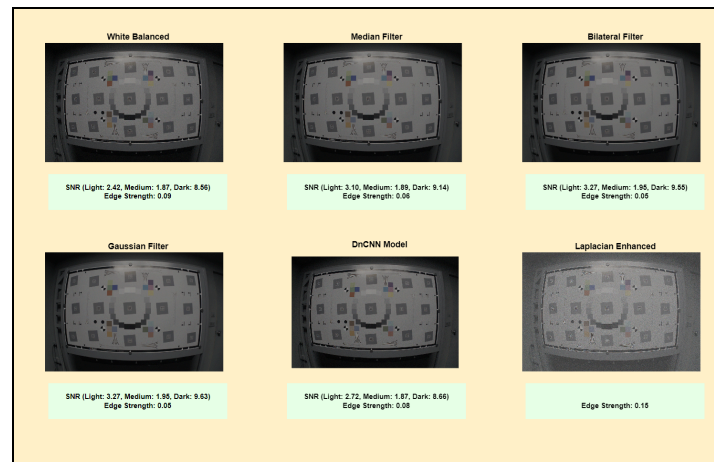
## 7. For Assignment 2:



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

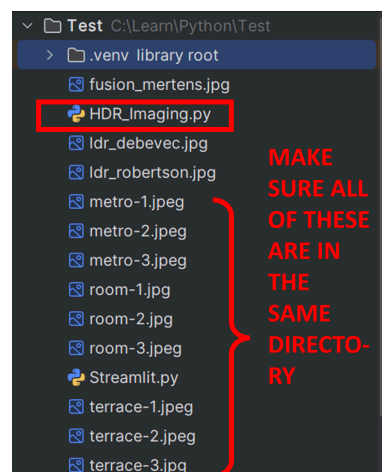


- 7.2. Click on OK and then Generate Output to view the results (output will take around 8-10 seconds to process)



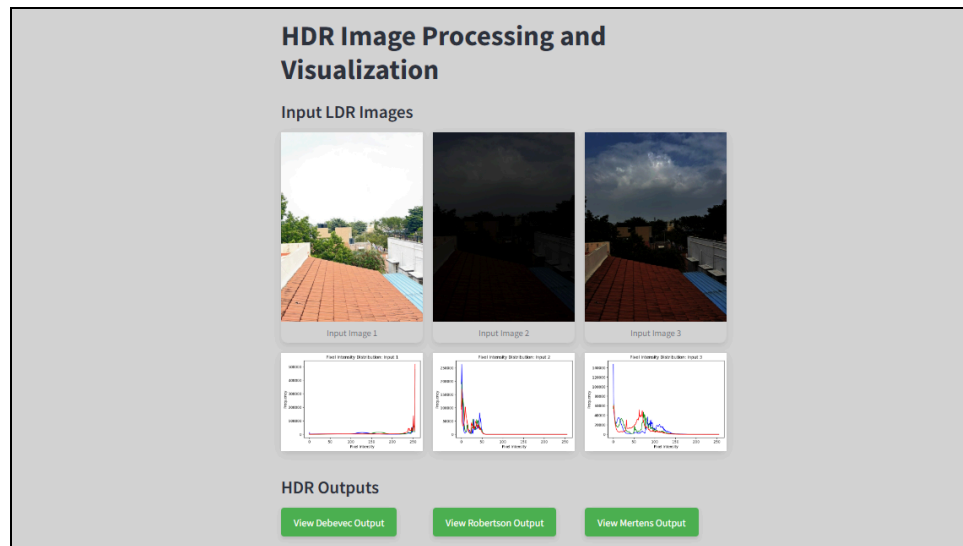
## 8. For Assignment 3:

- 8.1. Clone or download the project. (To clone run git clone <https://github.com/BlankParry/Emmetra-Assignments> in your terminal/command prompt).
- 8.2. Open a terminal or command prompt, navigate to the project directory using `cd '.\Emmetra-Assignments\Assignment 3\'`, and run:
- ```
pip install -r requirements.txt
```
- 8.3. 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.



(Ensure that the image files are present in the same directory as the **HDR\_Imaging.py** file. If not, use absolute/relative file paths to reference the images in your code.)

- 8.4. Run `cd '.\src\'` in terminal/command prompt to navigate to the source code directory.
- 8.5. Execute the main script (**HDR\_Imaging.py**) using the command `python HDR_Imaging.py`, which automatically starts the Streamlit application.
- 8.6. The Streamlit application will open in your default browser (or provide a URL in the terminal to access it).



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

