Assignment:-3

Image Processing

June 20, 2024

1 Introduction

Constellations, groups of stars forming recognizable patterns in the night sky, have fascinated humanity for millennia. Used for navigation, calendrical purposes, and cultural storytelling, they hold significant historical and scientific value. Modern astronomy and stargazing enthusiasts rely heavily on clear and precise images of constellations for identification and study. With the advancement of digital imaging technology, the quality and format of these images have become crucial for accurate recognition and analysis.

2 Problem Statement

Collect a Dataset(5-6 Images for each constellation) for the following constellations:-

- Scorpius
- Sagittarius
- Lyra
- Cygnus
- Aquila
- Bootes
- Draco
- Ophiuchus
- Virgo
- Hercules
- Corona Borealis
- Libra

And process these images, for producing fine and sharp images using different image processing techniques discussed.(OpenCV Preferred for implementation).(These images will be used as the training data for our model,hence it is expected that this assignment will be done diligently by everyone).

3 Submission Guidelines

- Submission is to be done individually.
- Submission should be in $Assignment-3-name.ipynb$ format.(Along with the 2 separate folders for the raw and processed image).
- Each and every content mentioned above should be in a single folder $Assignment-3-RollNumber-Name$.
- The format for raw image:- $Constellation-Input-RollNumber-(IndexOfImage).jpg$ (Hence if there are 2 images of the same constellation, the indexing will start from 0,1...).
- The format for processed output image:- $Constellation-Output-RollNumber-(IndexOfImage).jpg$
- Deadline for Assignment Submission:-23^{rd} June 2024(Sunday) 23:59.
- Submit a brief report describing the major image processing techniques used and the difference between the raw and processed data.
- You may follow the same steps mentioned in the README as before for uploading the Assignments.

4 OpenCV Resources

- OpenCV resources : You may refer to this playlist for understanding the OpenCV syntax.

5 Note

The processing of the image is totally a work of creativity, hence you can use different image processing techniques(You may surf the net for different techniques including the ones mentioned in the playlist and discussed in class) for this assignment.(Remember, clear images produce more accurate results). Happy Coding!!