Assignment:-4

Constellation-Detection(Final Showdown)

July 1, 2024

1 Introduction

Constellation detection, traditionally a task reserved for astronomers and star enthusiasts, has found a new ally in machine learning (ML). Leveraging the power of ML, we can now automate the identification and classification of constellations from astronomical images with greater accuracy and efficiency. This emerging application not only enhances our ability to map the night sky but also opens up new possibilities for educational tools, astronomical research, and even navigation technologies. How can machine learning algorithms be effectively utilized to detect and identify constellations in various datasets of astronomical images?

2 Problem Statement

Using the knowledge gained through the classes and the research papers referenced, develop a model for detecting Constellations in the night sky. The training data is provided in the Github link mentioned below. Bonus for adding your own images to the training data :).
Prepare a well-detailed LaTeX report including the methodologies used,description of the training and test dataset,algorithm descriptions,you may use the research papers provided for the reference,provide appropriate Graphs,Images and Figures in the report itself for clear explanation.

3 Submission Guidelines

- Submission is to be done in Teams(**SAME as in Assignment-2**).
- Submission should be in $Assignment-3-Teamname.ipynb$ format.(Along with the 2 separate folders for the test and train data).
- Each and every content mentioned above should be in a single folder $Assignment-3-Team-Name$.
- Deadline for Assignment Submission:-5^{th} July 2024(Friday) 23:59.
- Prepare a well-detailed LaTeX report including the methodologies used,description of the training and test dataset,algorithm descriptions,you may use the research papers provided for the reference.
- You may follow the same steps mentioned in the README as before for uploading the Assignments.

4 Reference Research Papers

- Julia-Wang : You may refer this research paper for understanding the procedure of celestial coordinate normalisation.
- Kartikeya Gupta, Anikait Sahota : You may refer this research paper for the model implementation.

5 Reference Model

- Kartikeya Gupta, Anikait Sahota : You may refer this model for cross-checking and debugging your model,you NEED to use the same train data(and test data preferably alongside you own images) for your model.

6 All The Best!

As I present the final assignment of objective-1.I really hope you all enjoyed the project throughout. Remember, projects are not just classes which have to be completed and learnt,but are a spark for your inquisitivity!. Hence,their are no bounds on this assignment,you may use all the knowledge that you have gathered around during the past few weeks!
Happy Coding!!