

DETECTION OF LINEAS OF EUROPA

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❖ Objectives:

- To detect Life in the ocean of 'Europa'.
- To make a better Linea detection model
- Study the spectroscopic data of the lineas

❖ **Dataset:** Galelio's solid state imaging data(NASA), requesting to get newer (private) dataset

❖ **Previous Models:** Random Forest, CNN-Random forest hybrid, U-NET

☐ Relevant Papers:

- Multi-class image segmentation using conditional random fields and global classification, Nils Plath, Marc Toussaint, Shinichi Nakajima
- Classification and Segmentation in Satellite Imagery Using Back Propagation Algorithm of ANN and K-Means Algorithm, P. Sathya, L Malathi
- Assessing the Role of Random Forests in Medical Image Segmentation by Dennis Hartmann et al.
- A Hybrid Cnn-Rf Method for Electron Microscopy Images Segmentation by Guibao Cao et al
- [Work of previous members](#)

- **Work Division:**

- Anshuman- Literature review, data processing ,new model execution, result analysis, documentation
- Pradeep - Literature review, baseline execution, new model execution, result analysis

- **Midway plans:**

- ◇ Extensive literature review on the topic and image segmentation algorithms
- ◇ (Possibly) Acquiring newer or better dataset
- ◇ Implementing baseline algorithms from previous projects
- ◇ Work on at least one new model for image segmentation

- **Further plans:**

- ◇ Trying more models to get better results
- ◇ Spectral analysis of the lineas

- **Expected results:**

Possibly solve the data augmentation and imbalance handling problems, create an improved model for linea detection of Europa, do spectral analysis of the lineas.