

Development of an object detection module for star-tracker systems

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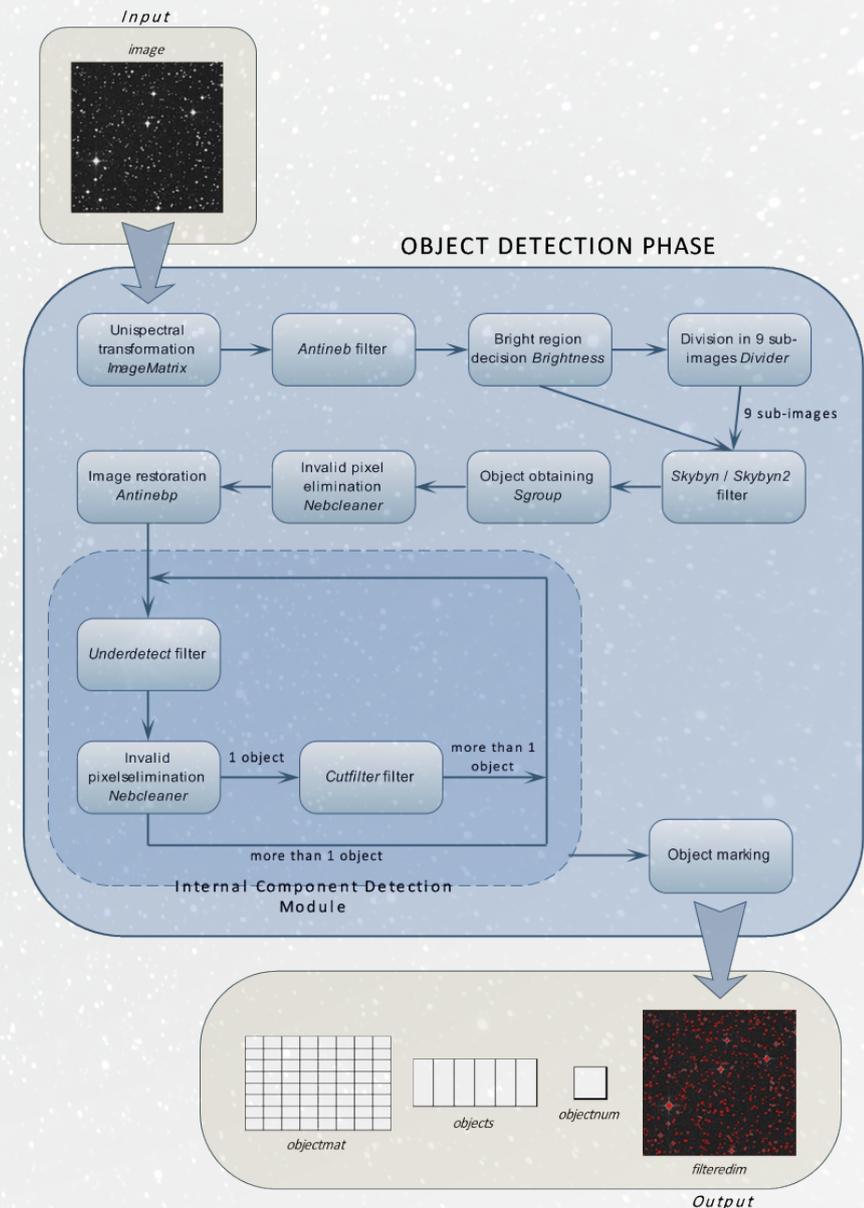
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- Star tracking devices help satellites maintain their position and orientation in Space.
- Star trackers capture images of star fields, and compare them to star field databases or reference images, to compute the spacecraft's attitude.
- A bright-object / star detection system has been developed in order to optimize the very earlier phases of constellation-based star-tracking methodologies.
- It is based in individual modules that makes up a sequential processing chain. These modules cover the following tasks:
 - Image / matrix conversions.
 - Image spatial filters.
 - Thresholding techniques.
 - Distinction of linked bodies (i.e double stars).
- The detection accuracy of the proposed system was compared to the ones obtained by *Misao*, *GCX*, *Otsu* and *Tsai* thresholding techniques.
- Results show that the proposed system obtains a very good performance, providing constant and accurate results as the gaussian noise (usually present in electronic devices) is increasing.



The proposed star detection system.

!Thanks for your attention!

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