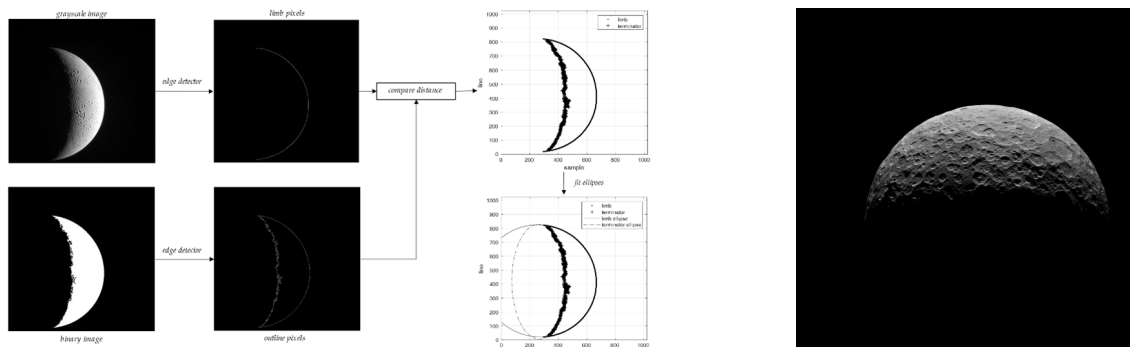


## OPTICAL METHODS FOR SPACECRAFT ATTITUDE AND ORBIT DETERMINATION

Images of celestial bodies collected by a camera contain much valuable information for a spacecraft, which can be used to infer the relative position and/or attitude. Imaging systems have been successfully employed in the past decades to this end, in the form of, e.g., star trackers, navigation cameras, horizon sensors. Depending on the apparent size of the targeted body within the image, different techniques are used to extract the relevant information. In this webinar, the fundamentals of optical navigation techniques will be discussed. Attendees will learn image processing techniques and attitude/position estimation algorithms. Test cases will also be discussed.



### SPEAKER

**Dario Modenini** is an Assistant Professor of Space Systems at the University of Bologna since 2015, with experience in autonomous navigation for spacecraft, attitude and orbit determination, and small satellites subsystems design. He took part in over 15 national and international research projects, with institutional entities (ASI, ESA, EU) and with national and European companies and industrial groups. His research interests include the development of software and hardware for attitude & orbit control systems, mission analysis and control, ground testing. He is the author of more than 40 conference and journal articles.

#### Learning objectives:

- Fundamentals of attitude and orbit estimation from images
- Image formation and processing techniques
- Algorithms for position and attitude determination

**Target audience:** doctoral students, non-academic professionals, and undergraduate students.

**Dates and time:** 9-10 May 2022, 10:00-13:00 CEST

### REGISTRATION AND CONTACTS

**Course Code:** 20220509

This course is part of the 2022 institutional activity for AIDAA members. The registration requires the purchase of one of the packages described here <https://www.aidaa.it/package-list/>, and the completion of the online form available here LINK <https://www.aidaa.it/2022/04/26/optical-methods-for-spacecraft-attitude-and-orbit-determination/>.

**Course platform:** Webex, a link will be sent via email as the registration is complete.

At the end of each course, **attendance certificates** will be sent to participants via email.

For further info, please, contact [academy@aidaa.it](mailto:academy@aidaa.it)

