



CALL FOR PAPERS

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on “Innovative Applications of Photogrammetry and Remote Sensing for Space Exploration and Planetary Mapping”

“Photogrammetry is the Key to Exploration of Space.” -- Sherman M. Fairchild, 1962.

For more than half a century, from the Lunar Mapping Camera of Apollo 15 to the Panoramic Camera of Yutu-2 rover, photogrammetry and remote sensing techniques have continuously boosted the exploration of space and planet mapping towards a more visible, measurable, and accessible era, providing instant, accurate, and reliable mapping and navigation. Recently, the advanced sensor devices and plenty of accessible data from diversified space missions have enabled a booming development of modern photogrammetry and remote sensing techniques, facilitating innovative applications in various space missions. With tools of photogrammetry and image analysis, the information from miscellaneous data is able to enhance our understanding, possibilities, and capabilities in the planetary mapping and space exploration. Although the complex space environment, restricted observations, and limited performance of devices make the use of photogrammetry and remote sensing in the desired tasks a great challenge, numerous intelligent and elegant algorithms, methods, and strategies has been proposed and developed for a wide variety of related tasks. In light of this, the use of these creative techniques could be an effective solution to broaden the horizon of current applications in space exploration and planetary mapping. For example, the popular deep learning method could be a catalyst for a more automatic and interpretable mapping from images. Although some tentative works have recently started to exploit the use of new techniques, yet the reported development remains limited. To this end, this special issue aims at promoting recent advances in algorithms and applications that contribute to the surveying, mapping, and navigation in space exploration and planetary mapping, for instance, 2D space image processing, 2D space or planetary remote sensing, vision-based space navigation, and 3D planetary mapping. Moreover, contributions relating to ongoing Lunar or Mars explore missions (e.g., TianWen-1 interplanetary mission) are highly welcomed.

The broad topics include (but are not limited to):

- 2D space and planetary image processing
- 2D / 3D anomaly and object from planet images
- 2D / 3D change detection of planet surfaces
- 2D / 3D planetary mapping and remote sensing
- 2D / 3D vision-based navigation
- 2D / 3D planetary and space data processing with machine learning
- Orbital data processing
- Lunar and interplanetary missions

Schedule

Jan 1, 2022 Submission system opening

Jun 30, 2022 Submission system closing

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on <http://mc.manuscriptcentral.com/jstars>, using the Manuscript Central interface and select the “**Space Exploration and Planetary Mapping**” special issue manuscript type. Prospective authors should consult the site <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768> for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee \$1,250 per paper.

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