RES-NRSC-2022-010

Name of ISRO Centre/Unit

National Remote Sensing Centre, Hyderabad

Title of the research proposal

Bundle Block adjustment of Large scale Indian Remote Sensing Data for large area ortho product generation using combination of AI/ML/DL technologies along with mathematical models.

Name of Co PI from ISRO Centre/Unit

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Area of Research

Orthorectification, Bundle block adjustment, Large scale large area remote sensing data.

Summary of the proposed research and expected deliverables

With the launch of sub meter spatial resolution remote sensing satellites, the need for the geometric adjustment with subpixel accuracy for large scale mapping applications involving large area mosaics is on the rise. These HR sensors can obtain large-scale remote sensing data which consist of a great number of images. Bundle block adjustment of large-scale data with conventional algorithm is very time and memory consuming due to the super large normal matrix arising from large-scale data. Hence, there is a requirement to develop new efficient hybrid technology algorithms combining the power of AI/ML/DL techniques during image matching and statistical methods for arriving at the mathematical models for geometry adjustment across the scenes in the block.

Scope of the Work:

➤ The scope of the proposal is to realize the state of the art bundle block adjustment algorithm for large scale data to generate large area ortho products. This will include software for bundle block adjustment of the all the scenes in the block and their ortho rectification.

Deliverables:
➤ Algorithm implementation code and the results along with the complete documentation.

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