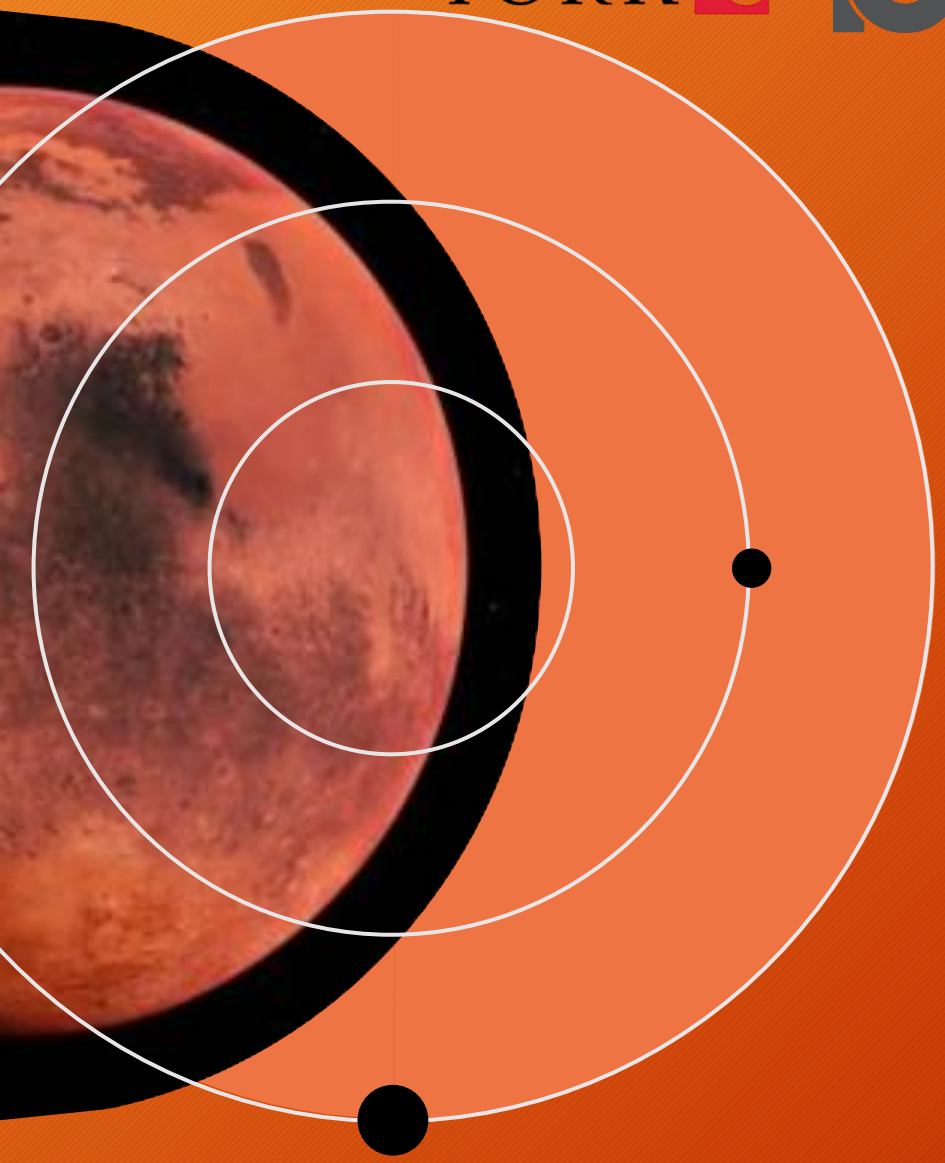
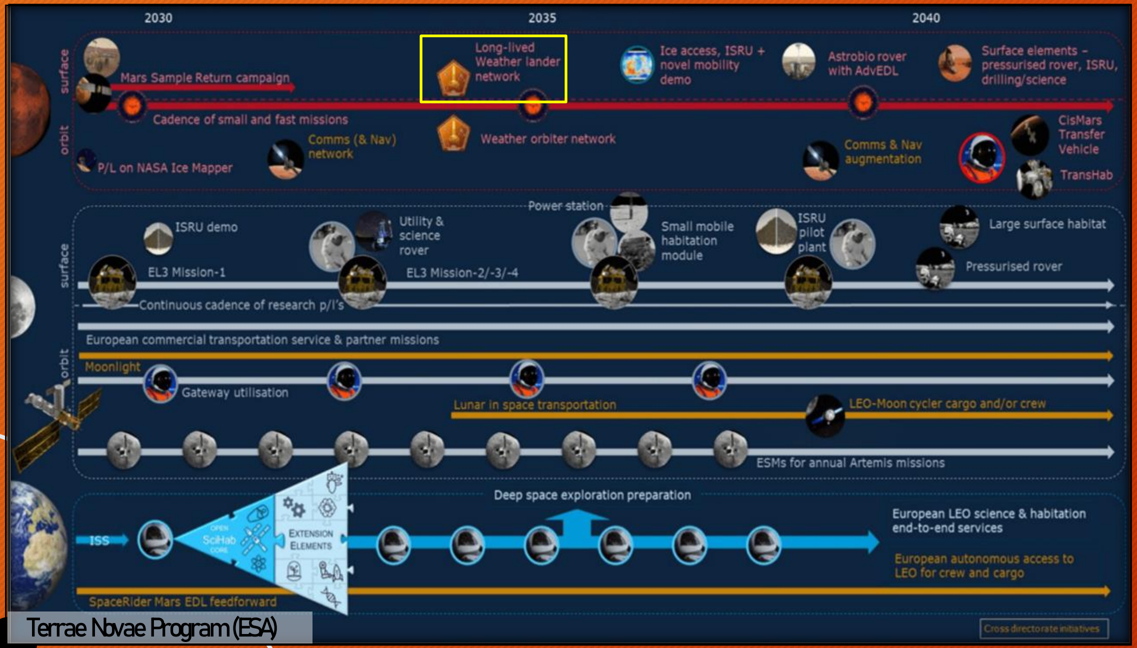


Software Framework for Command & Operation of a Mniaturized Martian Lidar

Samblas-Iglesias J., Carrasco-Blázquez I., Andrés-Santiuste N, Martín-Ortega-Rico A, Jiménez-Martín JJ., García-Menéndez E, Rivas-Abalo J., Muñoz-García E, Vázquez-Yáñez G A, Montalvo Chacón S., Andrés-Velasco S., Arruego-Rodríguez I.

Content

01 Miniaturized LiDAR for Mars Atmospheric Research (MiLi)



Terrae Novae Program (ESA)

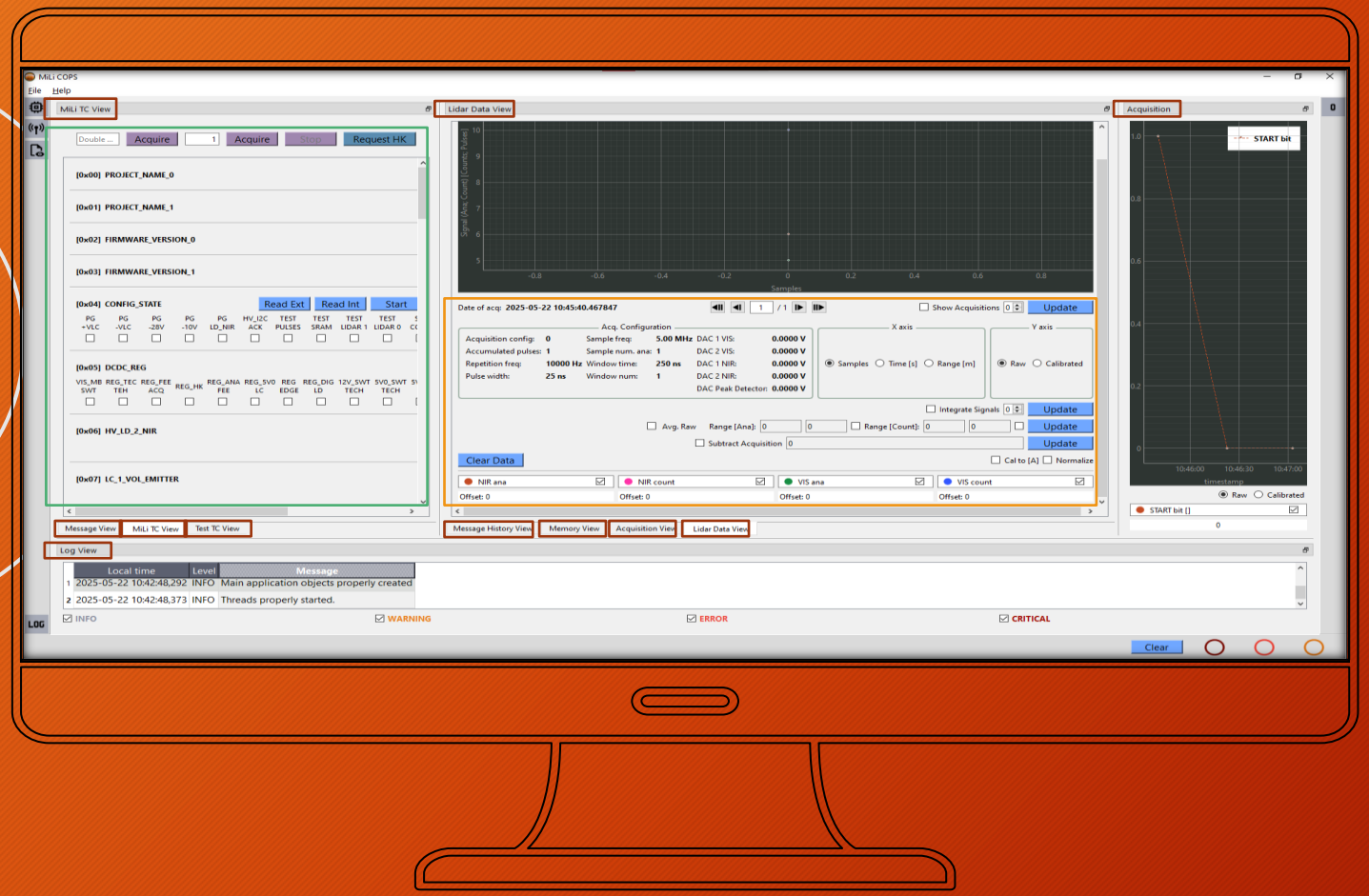
Main objectives

- Increase TRL of LiDAR technologies.
- Build an Earth-based model of an European LiDAR prototype.

Scientific objectives

- Aerosol vertical profiling.
- Ice-cloud detection.
- Dust devil and atmospheric boundary-layer characterization.

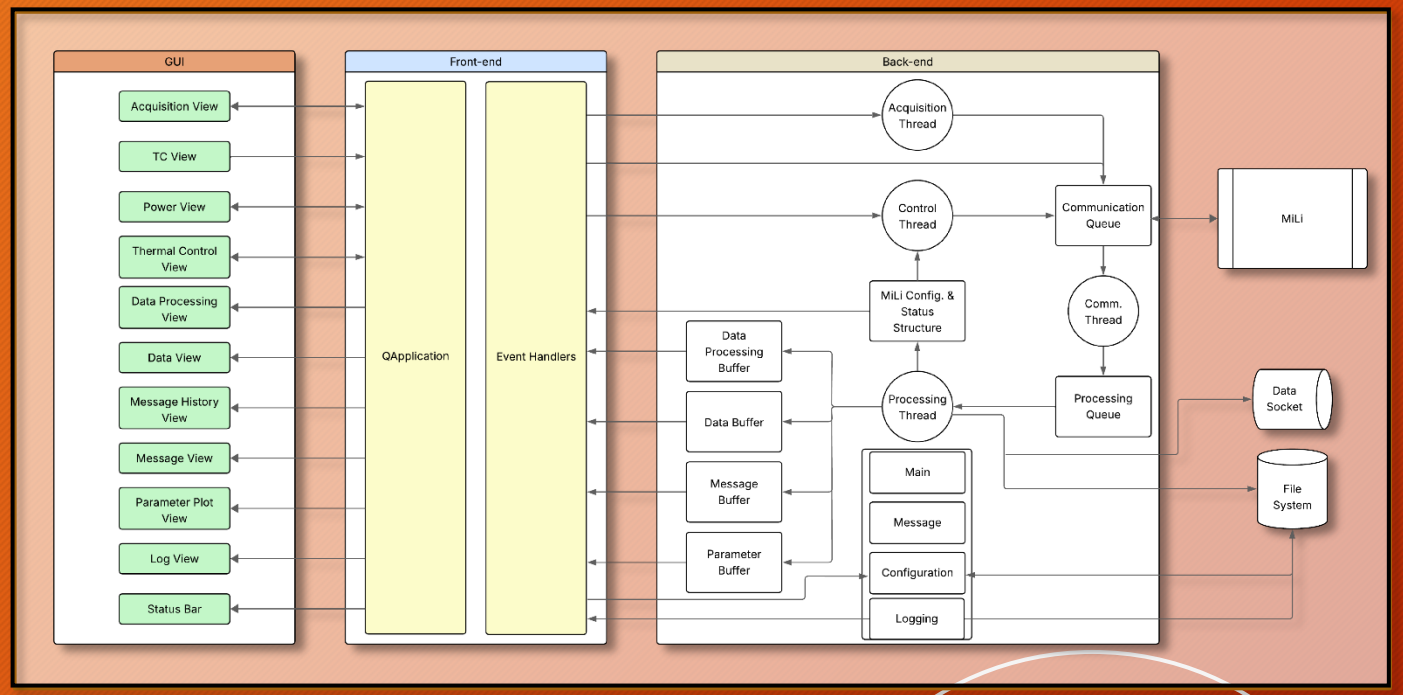
02 Control, Monitoring & Operation Software (COPS SW)



Key Design Aspects

- Modular Design.
- Real-time control of the instrument.
- Operational awareness and quick diagnostics.
- Flexible GUI to support multiple scenarios.

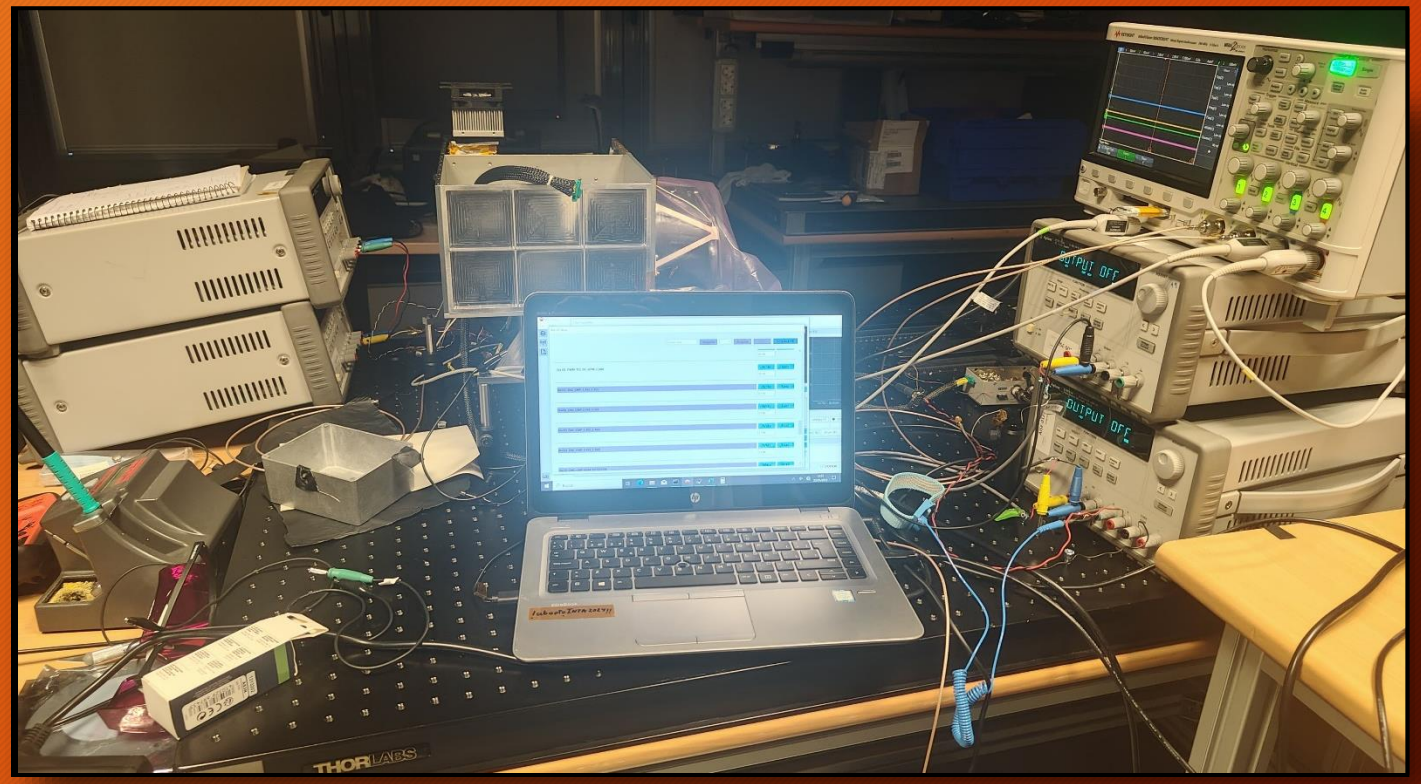
03 MiLi OOPS Software Architecture Overview



Architecture Highlights

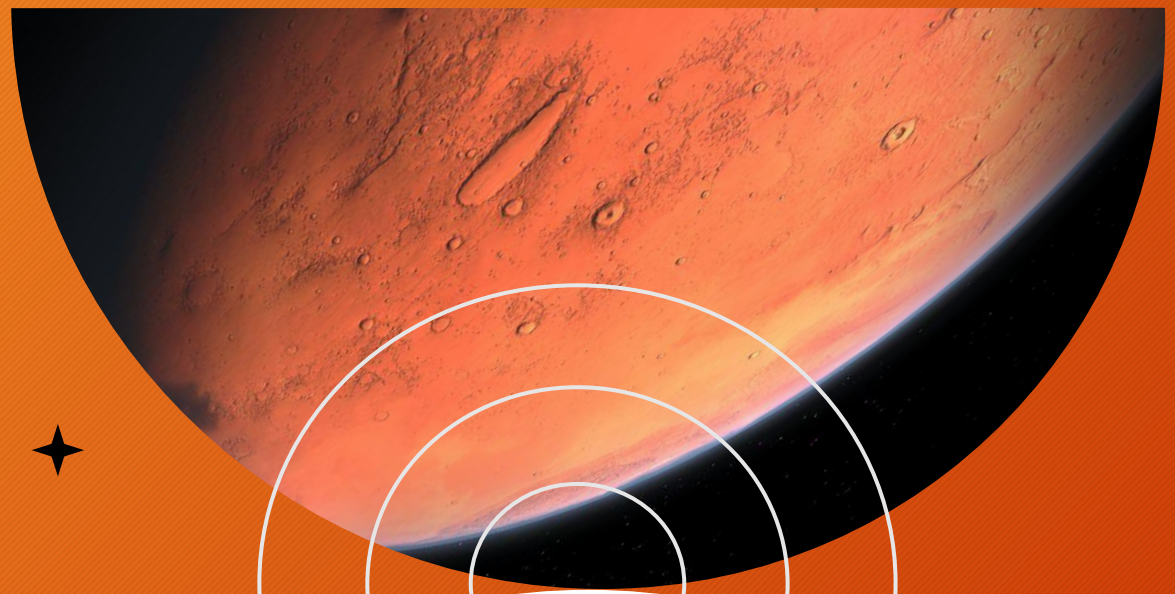
- Layered and modular design for reliability and scalability.
- Multithreaded operation for real-time performance.
- Asynchronous data acquisition and command handling ensure robust instrument control.

04 Integration & Validation



Integration & Validation role:

- Provides a unified interface to operate all HW subsystems.
- Enables rapid detection and troubleshooting of issues.
- Facilitates automated test, data acquisition and result logging.
- Support the whole validation process of the instrument.



Thanks!

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https://cordis.europa.eu/project/id/101082451