OBPDC 2026

Workshop Programme

12-14 October 2026



Monday, October 12, 2026

OBPDC 2026 Workshop Programme

8:30	9:00	Registration open
9:00	9:30	Workshop opening
9:30	10:15	Invited Talk - Josep Rosello
10:15	10:45	Coffee Break
10:45	12:05	Session 1: AI-Based and Semantic Compression
12:05	13:45	Lunch
13:45	14:30	Poster Session
14:30	15:15	Invited Talk - Laurent Despoisse
15:15	15:45	Coffee Break
15:45	16:45	Session 2: AI-Based Payload and Platform Integration
16:45	16:55	Day wrap-up

Tuesday, October 13, 2026

OBPDC 2026 Workshop Programme

9:00	9:15	Day opening
9:15	10:00	Invited Talk - Michele Martone
10:00	10:30	Coffee Break
10:30	12:10	Session 3: AI for Earth Observation and Space Surveillance
12:10	13:45	Lunch
13:45	15:05	Session 4: Hardware-Accelerated and High-Performance Compression
15:05	15:35	Coffee Break
15:35	16:35	Session 5: Advanced Compression Methods and Standards
16:35	16:45	Day wrap-up
17:00	18:30	Social Event
19:30	21:30	Social Dinner

Wednesday, October 14, 2026

OBPDC 2026 Workshop Programme

9:00	9:15	Day opening
9:15	10:00	Invited Talk - Santiago Garcia Hordley
10:00	10:30	Coffee Break
10:30	11:15	Invited Talk - Ignasi Ribas
11:15	12:15	Round Table: “Smart payloads, efficient data: sensors, optics, and onboard processing for space missions”
12:15	12:45	Workshop wrap-up and and "Penhu Yeh" Best Contribution Award
12:45	13:00	Conference close-up

Session 1: AI-Based and Semantic Compression

4 presentations

Speaker	Paper title
Dr. Protim Bhattacharjee – DLR	Compressed Learning-Based Semantic Compression Utilizing CCSDS 123.0-B-2
Dr. Ivan Rodriguez-Ferrandez – Coros Space	Resilient CCSDS Compression on Multinode COTS Compute: Checkpointing and Shared Context for Surviving Node Loss
Mr. Zhuo Zeng – UAB	LiDAR-Guided Multimodal Hyperspectral Image Compression
Mr. Alexandros Stavropoulos – OHB Hellas	To AI or Not to AI? The AIRGUS Flexible Neural Compression Framework for Scientific Space Data

Poster Session

2 presentations

Speaker	Paper title
Dr. Michele Martone – DLR	Smart On-Board Processing for Next-Generation SAR Systems: Achievements and Final Results of the SOPHOS Project
Dr. Anastasia Aidini – FORTH	On-Board Compression of Raw Images via Tensor Decomposition Learning

Session 2: AI-Based Payload and Platform Integration

3 presentations

Speaker	Paper title
Dr. Michel-Francois Foulon and Ms. Clotilde Szywala – TAS	A Generic On-Board AI Processing Chain for Earth Observation: From Application Development to Embedded Deployment and Mission-Level Orchestration
Mr. Stefano Oliva – Planetek	Beyond Compression: AI-eXpress as an In-Orbit Laboratory for Information-Driven Earth Observation
Mr. Niels van Etten and Mr Gideon Zweijtzer – Science and Technology B.v.	A Modular CDPU Platform Enabling Payload-Platform Integration, On-Board Data Compression and Intelligent Data Processing

Session 3: AI for Earth Observation and Space Surveillance

5 presentations

Speaker	Paper title
Ms. Julia Le Maitre – CNES	Neuromorphic On-Board Processing for Space Surveillance Awareness
Mr. Francois De Vielleville – Agenuim Space	On the Detection of RSO On Board Using AI
Mr. Thomas Goudemant – IRT Saint Exupery	Embedded Bi-Temporal Building Damage Assessment for On-Board Data Reduction
Ms. Clotilde Szywala – IRT Saint Exupery	Onboard Marine Anomaly Detection on PhiSat-2: From Simulation-Based Development to In-Orbit Demonstration
Mr. Omar Hlimi – IRT Saint Exupery	AI-Based On-Board Maritime Object Detection for Earth Observation Payload Data Reduction on Versal Embedded Hardware

Session 4: Hardware-Accelerated and High-Performance Compression

4 presentations

Speaker	Paper title
Dr. Antonio J. Sanchez – IUMA	Near-Lossless Hyperspectral Data Compression IP Core for Future Space Missions
Mr. Dimitrios Theodoropoulos - NKUA	FPGA-Accelerated CCSDS 122.0-B-2 and CCSDS 123.0-B-2 Compression for the ERMIS-3 CubeSat Payload Data Processing Unit
Dr. Felipe Machado – IUMA	A Parametric H.264/AVC Encoder IP Core for Spaceborne Video Compression in ESA Missions
Mr. Jean-Baptiste Lorent – Intopix	Enabling High-Performance On-Board Image Compression with JPEG XS

Session 5: Advanced Compression Methods and Standards

3 presentations

Speaker	Paper title
Prof. Diego Valsesia - PoliTo	Compression with Side Information, Revisited: Taking Advantage of Ground Segment Image Archives
Dr. Jordi Portell – DAPCOM Data Services S.L.	FFLX in FAPEC: High-Efficiency and High-Performance Lossless and Near-Lossless Software Compression of Multispectral and Hyperspectral Images
Mr. Athanasios Douklias – NKUA	Evaluation of the CCSDS 123.0-B-2 Standard for On-Board SAR Raw Data Compression: Rate-Distortion and Phase-Error Assessment on Sentinel-1C Data

Round Table

“Smart payloads, efficient data: sensors, optics, and onboard processing for space missions”

Wednesday, 14 October 2026 | 11:15-12:15

This roundtable brings together companies working at different points of the same value chain: sensor and payload design, readout electronics, onboard software, and downstream data handling. The common thread is how to turn raw spaceborne measurements into compact, reliable, mission-ready data products with less bandwidth, more autonomy, and better operational value.

Moderator: Maria Josep Sedó, Institut d’Estudis Espacials de Catalunya (IEEC)

Participants:

i) Arboleda Intelligence – Jonatan Domènech
ii) PulSensing – Óscar de la Torre
iii) Airbus Barcelona – Clément Jeanbart
iv) MWSE – Roger Jové
v) ASENSE – Daniel Banco

Companies

Arboleda Intelligence is a critical-software company developing intelligent systems for next-generation space missions. Its expertise spans EGNOS V3/Galileo augmentation, onboard AI, FDIR, signal intelligence and payload data handling, including the SeRANIS/ATHENE-1 mission with UniBw München and OHB/LuxSpace, supporting 15 heterogeneous experiments on the Triton-X platform. Arboleda is also contributing PDHU expertise to ESA’s TANGO mission with ISISPACE, managing instrument data and metadata for atmospheric air-quality monitoring.

PulSensing is a deep-tech semiconductor spin-off from the Institute of Cosmos Sciences of the University of Barcelona (ICCUB) that designs custom ASICs and ultra-fast readout electronics for radiation and particle detection. Operating under a scalable fabless model, the company delivers compact, low-power, radiation-tolerant electronic modules for harsh environments, serving precision medical imaging, CubeSats and space missions.

Airbus GeoTech is part of Space Digital, a department within Airbus Defence and Space. Airbus GeoTech develops 3 main activities. First of all, VHR imagery selling through its owned constellations

(Pléiades Neo, CO3D, PAZ, SPOT, Terra-SAR X). Secondly, Airbus GeoTech provides mapping services such as Intelligence reports, 3D mapping, cartography, and reference mapping. Finally, Airbus GeoTech develops the new generation of HAPS (High Altitude Platform Station) payloads to deliver VHR and persistent imagery (visible and InfraRed) from the stratosphere.

MWSE is an electronic engineering company. It is specialized in the development of custom radio frequency payloads, front-ends and remote sensing instruments. In space, MWSE is currently responsible for the GNSS-R receiver and L-band radiometer of the Atlantic Constellation. The company was also part of the GASPER (GAlileo SPace receivER) consortium with Indra Deimos. Its MINERVA on-board computer is a modular software defined radio capable of combining radio frequency, FPGA processing, and a NVIDIA Jetson for in-orbit parallel processing.

ASENSE is a technology company specialising in the design, development and manufacture of advanced optical, photonic and electro-optical systems for space, defence, industrial and scientific applications. With strong vertical integration capabilities spanning optical design, optomechanics, electronics, software, integration and testing, ASENSE delivers complete end-to-end solutions from concept to qualified product. The company has established a growing space heritage through the development of payloads and optical instrumentation for Earth Observation, Astrophysics and Space Situational Awareness missions across UV, visible, SWIR and LWIR spectral bands. ASENSE heritage includes optical systems in orbit in SWIR and LWIR, and several optical systems for payloads to be launched, including VISIBLE EO and SWIR telescopes, as well as further LWIR systems. Its portfolio also includes the ASTRA family of modular cameras and thermal imaging solutions for Low Earth Orbit applications, supported by in-house cleanroom, optical manufacturing, characterisation and environmental testing capabilities.

Biographies

Jonatan Domènech is an architect and aerospace engineer with 10+ years' experience on Spacecraft critical systems.

Óscar de la Torre Pérez is Co-Founder and CEO of PulSensing. With a background in physics and business administration, he combines technical management expertise with years of experience in ASIC quality control and instrument development. He specializes in low-power, radiation-tolerant readout microelectronics for high-energy physics and space science missions, including contributions to initiatives such as ILIADA and LISA.

Clément Jeanbart is an R&D aerospace engineer, specialized in AI applications for remote sensing over Very High Resolution (VHR) imagery.

Roger Jové Casulleras holds a PhD in Aesopace Science and Technology, Industrial and Aeronautical Engineer. Co-Founder and CEO of MWSE Microwave Sensors and Electronics SL (since 2020), and the previous Balam Systems Engineering -Balamis- since 2015 until 2020.

Daniel Banco graduated from Worcester Polytechnic Institute in 2015 studying Physics/Electrical Engineering and then completed his MS/PhD at Tufts University in Electrical Engineering focused on signal processing and machine learning. During his studies and as a postdoc at the same institution he developed sparse/compressed sensing models for high dimensional data with applications in high-energy x-ray microscopy and MRI. He joined ASENSE at the start 2026 as a software engineer focused on image processing and has worked on multispectral image fusion, optical characterization/calibration automation, alignment automation for space telescopes.

Invited Talks

5 presentations

Speaker	Paper title
Josep Roselló Guasch	The evolution of the European Earth Observation Ecosystem and related Technology needs
Laurent Despoisse	On-board AI Concept for Copernicus Hyperspectral Imaging Mission for the Environment (CHIME)
Michele Martone	On-Board Data Compression for SAR Systems: From Research to Future Missions – Challenges and Perspectives
Santiago Garcia Hordley	European Collaborative R&I Funding Opportunities for the Space Sector
Ignasi Ribas	Big Missions, Small Satellites: Space Astrophysics at IEEC

Biographies

Josep Roselló Guasch leads the EO Technology Coordination section in the EO Future Missions and Architecture Department at ESA/ESTEC. He's a Telecommunications Engineer from UPC Barcelona (ES) and holds an MBA from RMS Rotterdam (NL). He joined ESA in the Data Handling Division in D/TEC in 1992, and he moved to the D/EOP Directorate in 2007. He has contributed to numerous technologies in avionics, communications, navigation, and EO remote sensing. His work spans across flagship ESA missions and programmes such as Envisat, MetOp-SG, Copernicus, and several NewSpace missions.

Laurent Despoisse is the CHIME satellite engineering manager at the European Space Agency (ESTEC). He joined the ESA Earth Observation Directorate (D/EOP) in 2023 after 15 years of diversified experience with a large space systems integrator, as R&D engineer, electrical architect, in-orbit operations preparation manager, and satellite engineering manager.

Michele Martone received the B.Sc. and M.Sc. degrees from the University of Naples Federico II, Naples, Italy, and the Ph.D. degree from the Karlsruhe Institute of Technology, Germany, in 2019. Since 2009, he has been with the Microwaves and Radar Institute of the German Aerospace Center (DLR), Germany, where he has contributed to the development of the TerraSAR-X and TanDEM-X missions and to the design of future synthetic aperture radar (SAR) systems. His research focuses on signal processing and machine learning for SAR interferometry, as well as innovative SAR system design and efficient data reduction techniques. He has authored or coauthored more than 100 scientific publications and holds three patents in the field of SAR. He regularly serves on the technical program committees of several international conferences and workshops and is a member of the Consultative Committee for Space Data Systems (CCSDS).

Santiago Garcia Hordley is an Industrial Engineer (M.Sc.) with postgraduate specialization in Financial Management and Business Digital Transformation. He advises companies and innovation stakeholders on access to European funding opportunities, including those related to the space ecosystem, in his role as Senior Consultant for European R&D&I Programmes at ACCIÓ.

Ignasi Ribas holds a PhD in Physics from the University of Barcelona and is currently a Research Professor at the Institute of Space Sciences of the Spanish National Research Council (CSIC). He is also a member of the Royal Academy of Sciences and Arts of Barcelona (RACAB) and of the Institute of Space Studies of Catalonia (IEEC), which he directed from 2017 to 2025. His research focuses on the discovery and characterisation of exoplanets, particularly Earth-like planets, with the long-term goal of searching for signs of life. He holds senior responsibilities in astronomical instrumentation and in several space missions, including CHEOPS, PLATO and Ariel. He also coordinates the development of nanosatellite projects. He has published more than 500 research articles in high-impact international journals. In 2018, he received the City of Barcelona Award in Experimental Sciences and Technology.

Catalan Agency for Business Growth (ACCIÓ) is the Government of Catalonia's business growth agency that works by supporting innovation, international expansion and business strategy. With a team of 500 professionals and 40 offices around the world, we support nearly 40,000 companies every year. We offer support for R&D projects, green and technological transformation projects, as well as in processes of internationalisation and opening of subsidiaries abroad. We are also responsible for attracting foreign investment to Catalonia, through the Catalonia Trade & Investment area, and to help companies generate a positive impact on the environment. To achieve all these objectives, we have an expert and multidisciplinary team, both at the Barcelona headquarters and at our eight delegations in the rest of Catalonia, which reinforces our vocation for service and proximity to companies, and makes the agency a benchmark in driving the competitiveness of the Catalan business network. We collaborate with local and international business entities to explore synergies and ensure that Catalan companies have a wider range of instruments in order to grow and be more competitive.