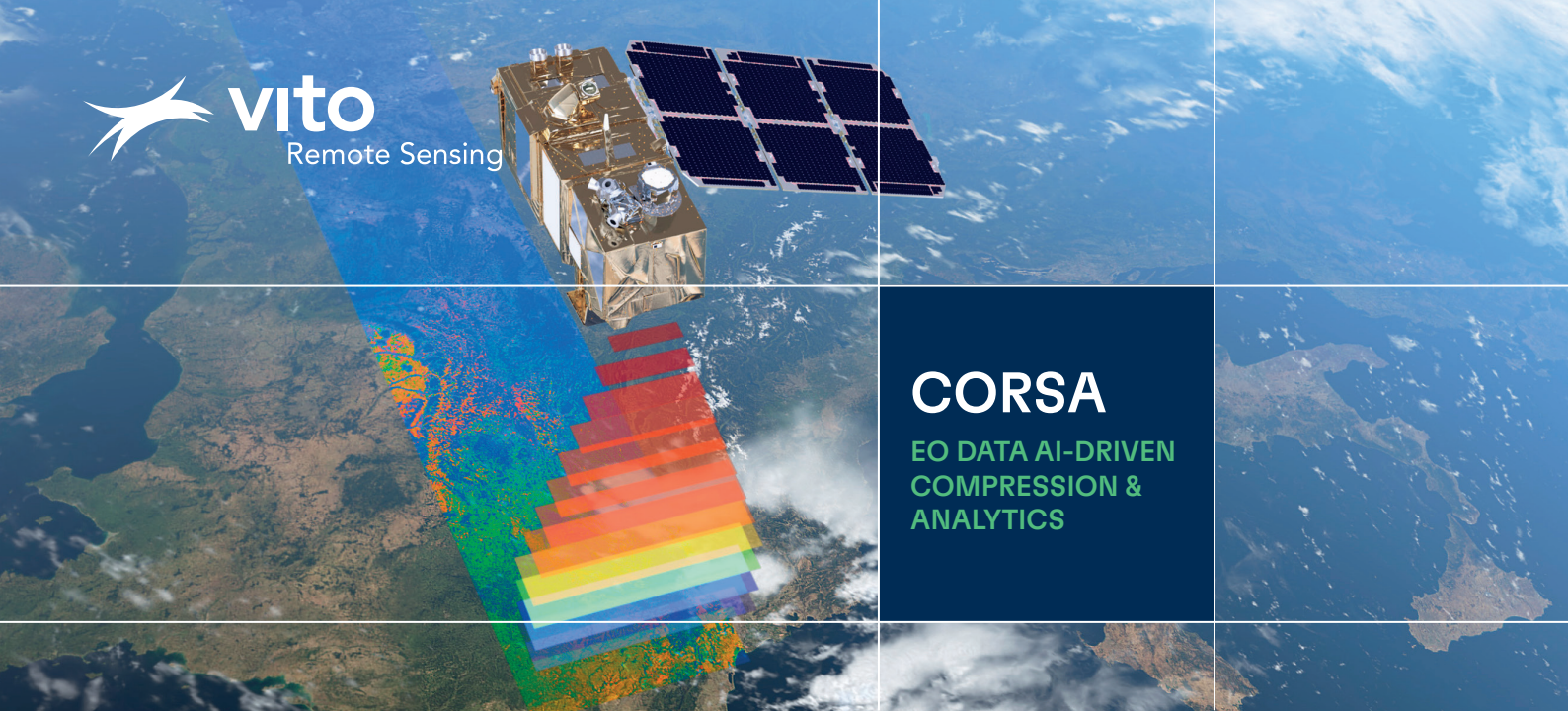
vito
Remote Sensing



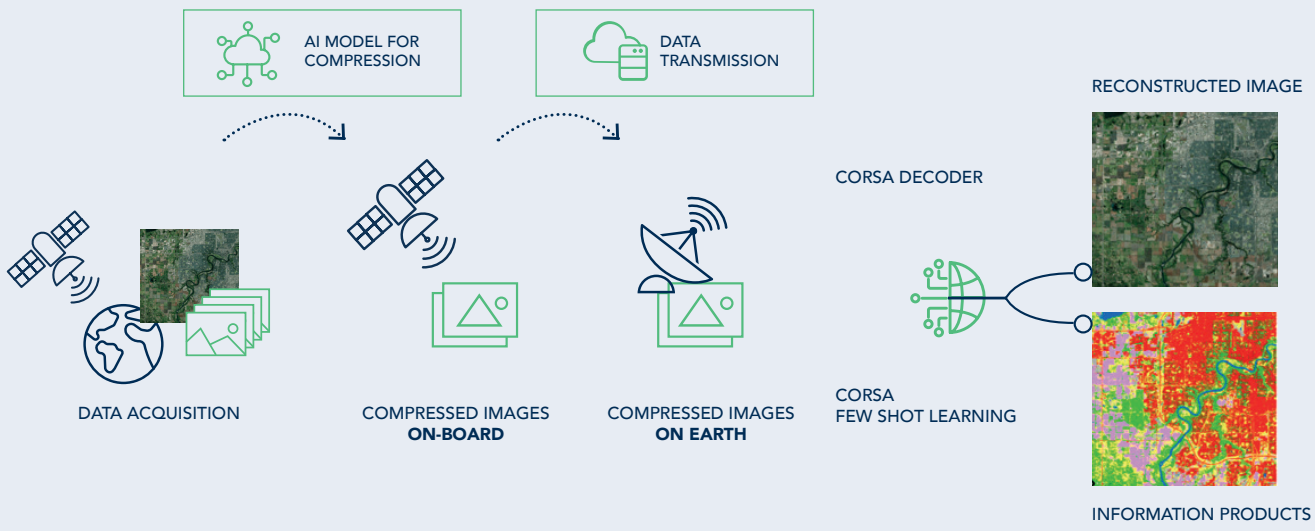
CORSA

EO DATA AI-DRIVEN COMPRESSION & ANALYTICS

REVOLUTIONIZING EO WITH AI-DRIVEN DATA COMPRESSION

CORSA introduces a revolutionary AI-based method for near-lossless image compression and analysis of Earth observation data, optimizing storage use and enhancing data processing efficiency.

CORSA PROCESSING FLOW



EFFICIENT DATA USE

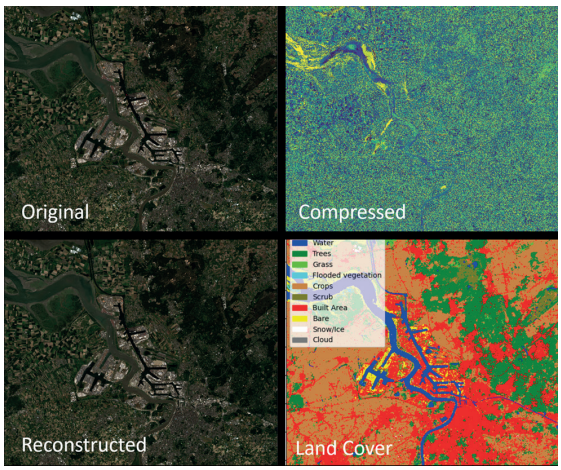
Greatly reduces the volume of data that needs to be transmitted and stored, up to 100x compression.

HIGH-QUALITY RECONSTRUCTION

Maintains high image fidelity with minimal quality loss.

VERSATILE APPLICATION

Supports a range of downstream tasks like land use classification, change detection and natural disaster mapping directly from compressed data.



blog.vito.be/remotesensing
remotesensing.vito.be

KEY FEATURES

AI-DRIVEN COMPRESSION

Implements a novel deep learning architecture to compress optical EO imagery into compact embeddings and quantized bitstreams.

EDGE COMPUTING

Reduces data transmission needs by processing data closer to the source by a factor 20 to 100 without information loss.

FOUNDATION MODEL

Compressed bitstreams act as multi-purpose semantically meaningful embeddings. Enables fast application training & deployment minimizing memory footprint and bandwidth.

TARGET AUDIENCE

Space agencies, EO satellite and data providers, environmental monitoring organizations, and research institutions involved in Earth observation.

This technology enhances efficiency and reduces costs for space providers and space agencies.
It paves the way for advanced AI in future space missions and will expand into hyperspectral data analyses, broadening its impact across EO sectors.

OFFERED SERVICES

+ **CUSTOM TRAINED MODELS FOR NEW SENSORS:** Tailored for efficient onboard integration with a custom ground decoder.
+ **PRETRAINED MODELS:** Optimize large-scale EO data storage and processing in your EO portal.
+ **DOWNSTREAM APPLICATION AI:** Custom build information products on CORSA compressed embeddings: classification, semantic segmentation, object detection & instance segmentation.

TECHNICAL SPECIFICATIONS

+ **SUPPORTED SENSORS**: Sentinel-1, Sentinel-2, EnMAP, PRISMA, APEX
+ **CORE ALGORITHM**: Lightweight Adapted and quantized VQVAE-2 architecture
+ **CURRENTLY SUPPORTED HARDWARE**: CPU/GPU, Nvidea Jetson Orin family, Hailo-8

Nvidia Jetson Orin NX performance - ENMAP VNIR bands - 116x CORSA compression, tile size 128x128x54											
Model	# Param(M)	MPixel/s		Tiles/s		ms/Tile		PSNR	SSIM	SAM	PSF
		12.5W	27.7W	12.5W	27.7W	12.5W	27.7W				
tiny	0,44	7,1	18,1	431,5	1105,1	2,3	0,9	56,5	0,85	0,98	0,18
small	1,70	5,5	14,2	338,0	869,6	3,0	1,1	60,2	0,92	1,00	0,22
default	6,70	3,2	8,6	192,4	523,5	5,2	1,9	60,2	0,93	1,00	0,22
large	26,58	1,2	3,2	73,2	197,8	13,7	5,1	59,4	0,93	1,00	0,25

PRICING

Details are project-specific and available upon request.

GET STARTED

Prototype to compress Sentinel-2 images with the CORSA algorithm:

Via the notebook at the CORSA Github

As a service via Terrascope

More info
CORSA

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