



AGGENIUM
COMPLEX SYSTEMS INTEGRATOR

HIGH VALUE-ADDED
CROSS-EXPERTISE
SOLUTIONS

INDUSTRY

A row of fighter jets, likely F-16s, parked on a tarmac. The image is heavily tinted with a blue color. The cockpit canopies are open, and the aircraft are lined up. The text "HIGH VALUE ADDED CROSS-EXPERTISE SOLUTIONS" is overlaid on the left side in white, with "CROSS-EXPERTISE" in bold. The word "DEFENSE" is overlaid on the right side in a large, bold, white font.

HIGH VALUE ADDED
CROSS-EXPERTISE
SOLUTIONS

DEFENSE

HIGH VALUE-ADDED
CROSS-EXPERTISE
SOLUTIONS

SPACE





AGENIUM IT & SYSTEMS

Complex Systems Integrator

AGENIUM INDUSTRIES

Obsolescence management
and design of electronic boards

AGENIUM DIGITAL FACTORY

Digitization of business processes

AGENIUM SOFTWARE SOLUTIONS

Distribution of technical
and scientific software

AGENIUM 3D LAB

3D modeling and generation
of synthetic environments

AGENIUM CAMPUS

Advanced training



AGENIUM SPACE

Embedded Deep Learning
and image processing



AGENIUM

AN ECOSYSTEM

AT THE HEART OF YOUR SOLUTIONS



Some of our products
have obtained this label



EMBEDDED

Specific skills needed to renovation of systems equipped with Mitra type computers, VME boards, Digibus buses, ARINC buses, Synchro/Resolver boards, systems still in use in the defense, naval, aeronautical and railway sectors.

Communication gateways interfacing old systems/equipment with the "modern" world (Ethernet, ergonomic IHM)

- Knowledge of old systems
- Design of electronic boards
- Developments on FPGA and μ C
- Real-time software development
- Knowledge of MITRA, DIGIBUS, ARINC, CAN



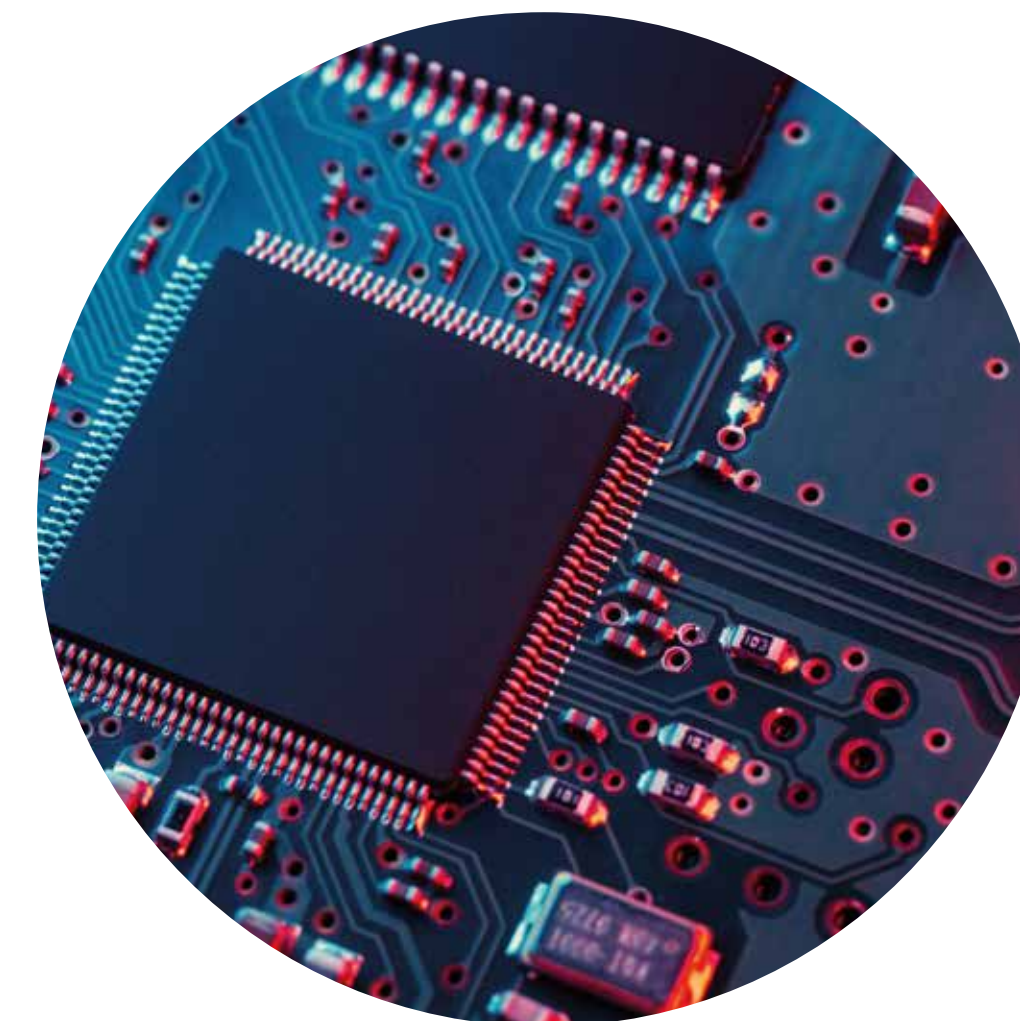
OBSOLESCENCE MANAGEMENT

An entity specialized in the obsolescence treatment of old systems (computers, consoles, peripherals, interface bay...) to ensure the sustainability of these materials over time.

A complete control of the study to the realization of a complete equipment (mechanics, electronics, data processing and wiring).

Our systems are environmentally qualified to meet the constraints of operational systems.

- Computer and peripheral emulation solutions
- Development of acquisition tools
- Modernization of test benches
- Renovation of interface bays

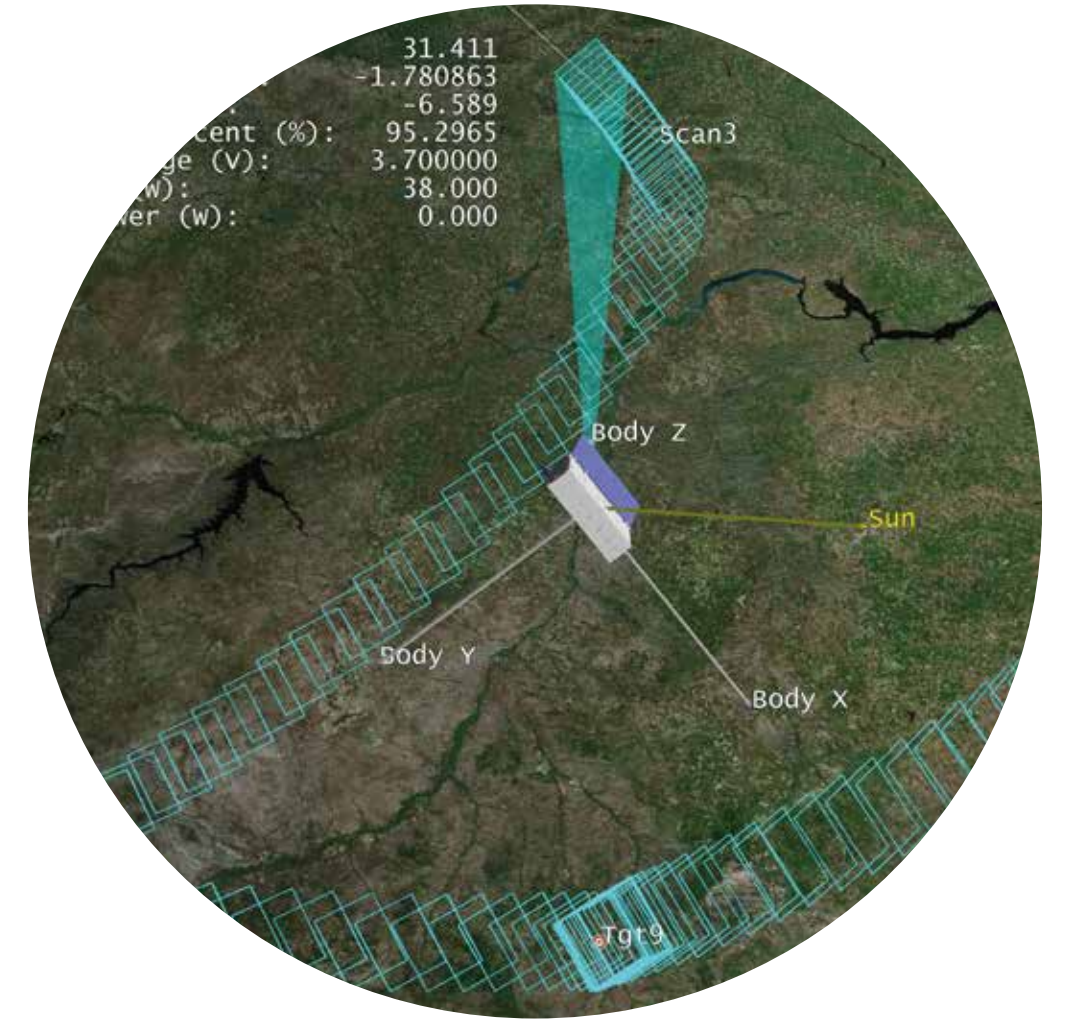


ELECTRONIC BOARDS

Advanced knowledge in electronics and computer science.

Mastery of modern development tools.

- Architecture of VME CPU boards, PC/104
- Design of digital electronic boards
- Development on FPGA in VHDL
- Development on microcontroller and ARM processor
- Analog and digital acquisition boards
- Complete rack-mounted control systems



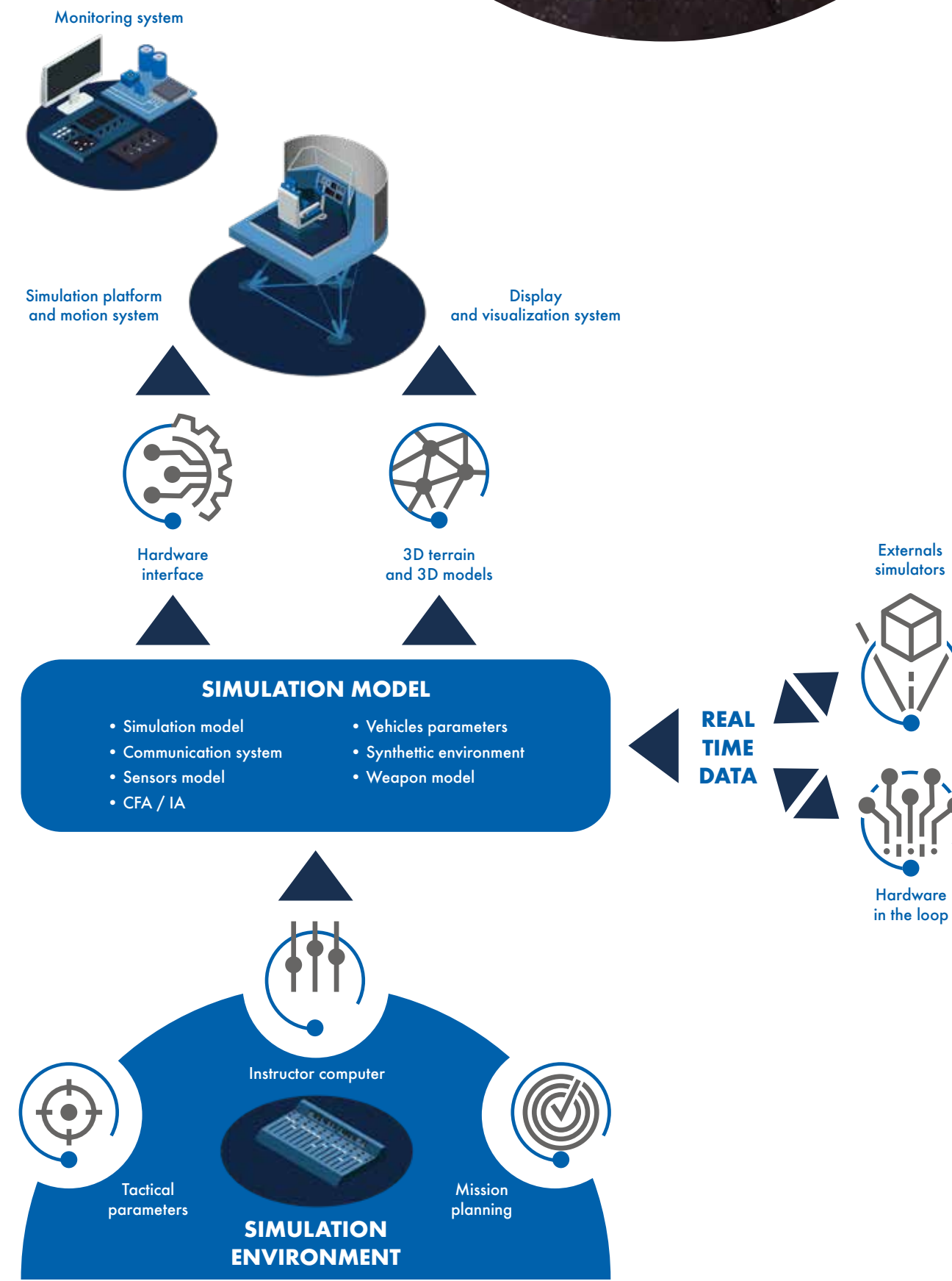
SIMULATORS

Agenium is a recognized integrator of complete simulation systems.

Our simulators are made up of a set of independent software and hardware components from the **AGENIUM GROUP** heritage. They are perfectly modifiable and configurable.

The components of our simulation environments are interchangeable in order to guarantee a match with the instruments deployed in the forces or in the civil sector. Our simulators can be adapted to all types of equipment.

- Development of simulation environments
- Development of simulation models
- Development of hardware interface
- Development of 3D models and synthetic fields
- Development of visualization systems
- Development of 3 or 6 axis systems



SYSTEM SIMULATION

System simulation solutions (system systems).

Integration of all elements such as products, process(es) connected and linked together, in order to satisfy, in a given environment, one or more objectives (MIL-STD-499B, EIA/IS-632, ISO-12207, SE-CMM, ISO/IEC 15288, EN 9200, DODAF, etc).

INDUSTRY • DEFENSE • SPACE



VIRTUAL TERRAINS

Agenium 3D Lab has been producing for over 12 years **virtual terrains adapted to your training simulation.**

Whether it is for the creation of **geo-specific or geo-typical terrains**, we support you in data sourcing, radiometric harmonization of imagery backgrounds, cartographic data production, procedural generation, infrared characterization and terrain optimization for real-time display.

Depending on the type of simulation, ground, air or space, **we adapt the level of detail to meet your operational needs.**



3D MODELS

Agenium 3D Lab offers a large catalog of off-the-shelf 3D models, configured for **Unreal Engine, Unity, VBS, VegaPrime, STK or Cesium.**

Optimized **for real-time display**, our models feature LODs, PBR materials and heat maps for infrared simulation.

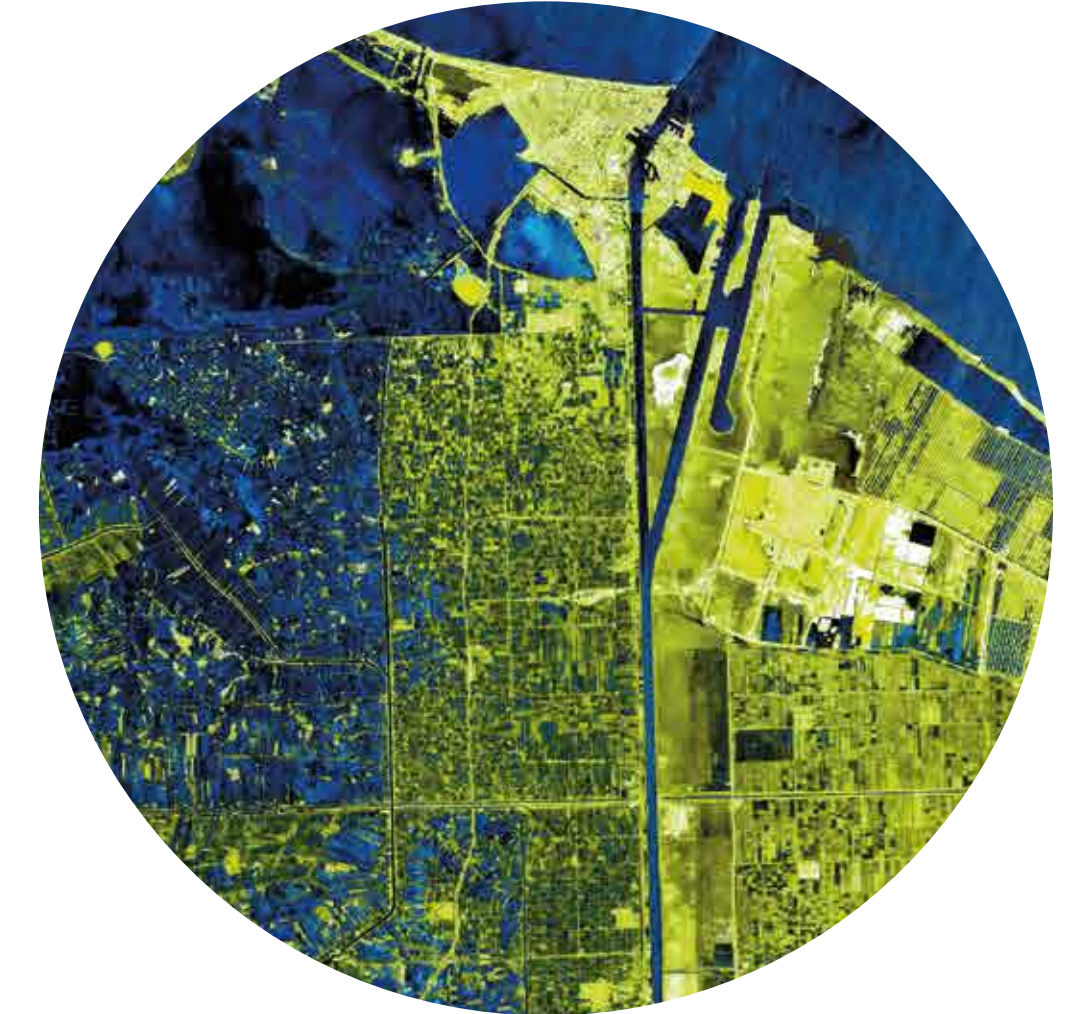
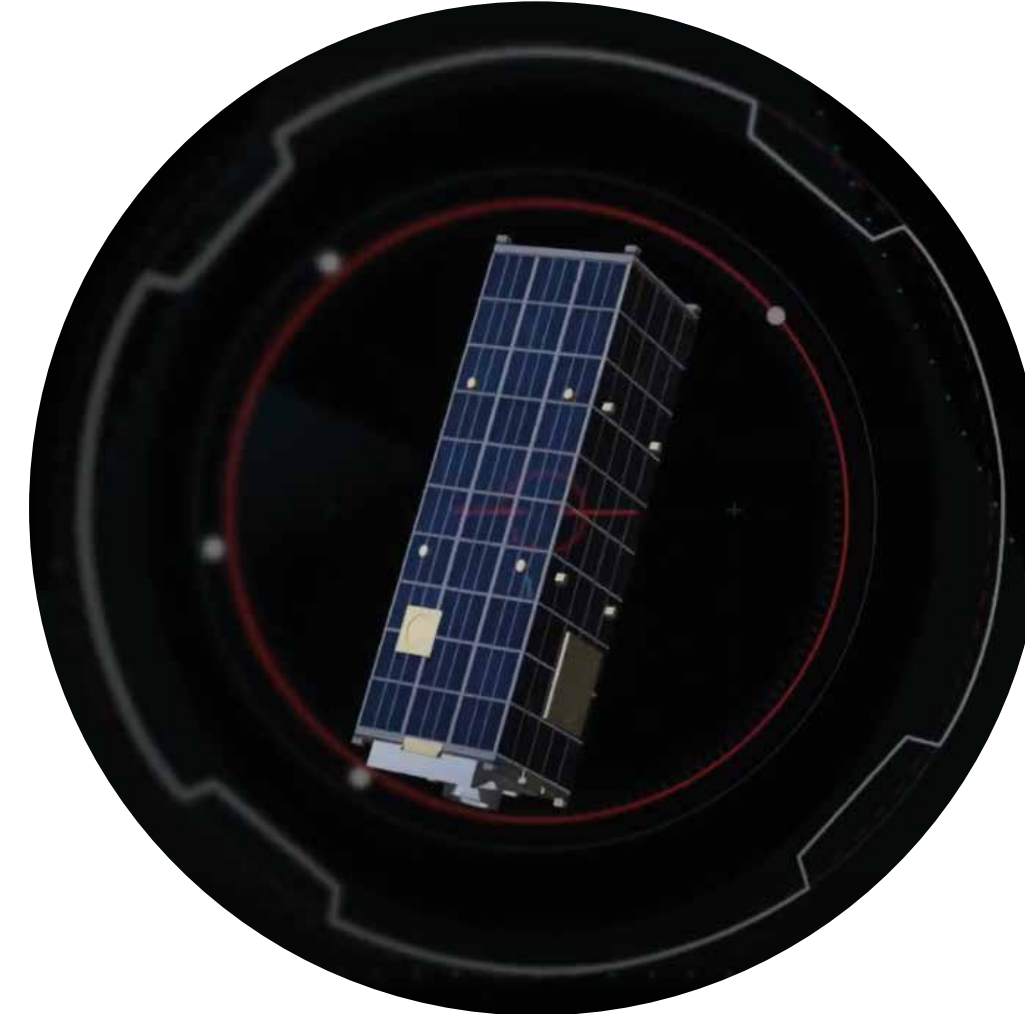
Whether **for environmental assets, vehicles or remarkable buildings**, Agenium 3D Lab offers 3D modeling services on demand.



3D TECHNOLOGIES

Agenium 3D Lab will help you develop your **applications and training simulators**, in particular thanks to the Unreal Engine technology.

As a French partner of Epic Games, Agenium 3D Lab offers several levels of training for Unreal Engine.



AGENIUM SPACE'S EXPERTISE

Created in 2018, Agenium Space: a team of about 20 engineers and PhDs who are experts in image processing and artificial intelligence.

Nationally and internationally recognized expertise:

- **SME label from the CNES for our expertise in embedded Deep Learning**
- **DeepTech label from the BPI**
- **Ranked by the CNES as a national priority for the DeepCube project within the GSTP Make program**
- **Selection for the IOD/IOV call for projects in the framework of the Recovery Plan of the French Government**
- **Rankings in international challenges:**
 - **SpotGeo:** 1st place!
 - **AIRQuality:** 2nd place!
 - **Space Debris, the origin:** 4th place
 - **Cloud Cover Detection**
less than 1% difference with the winner

OUR SOLUTION

Implementation of DNN (Deep Learning Neural Networks) on embedded hardware for using artificial intelligence directly from the space vector.

Automate DNN simplification strategies to enable integration and thus create new services and reduce costs.

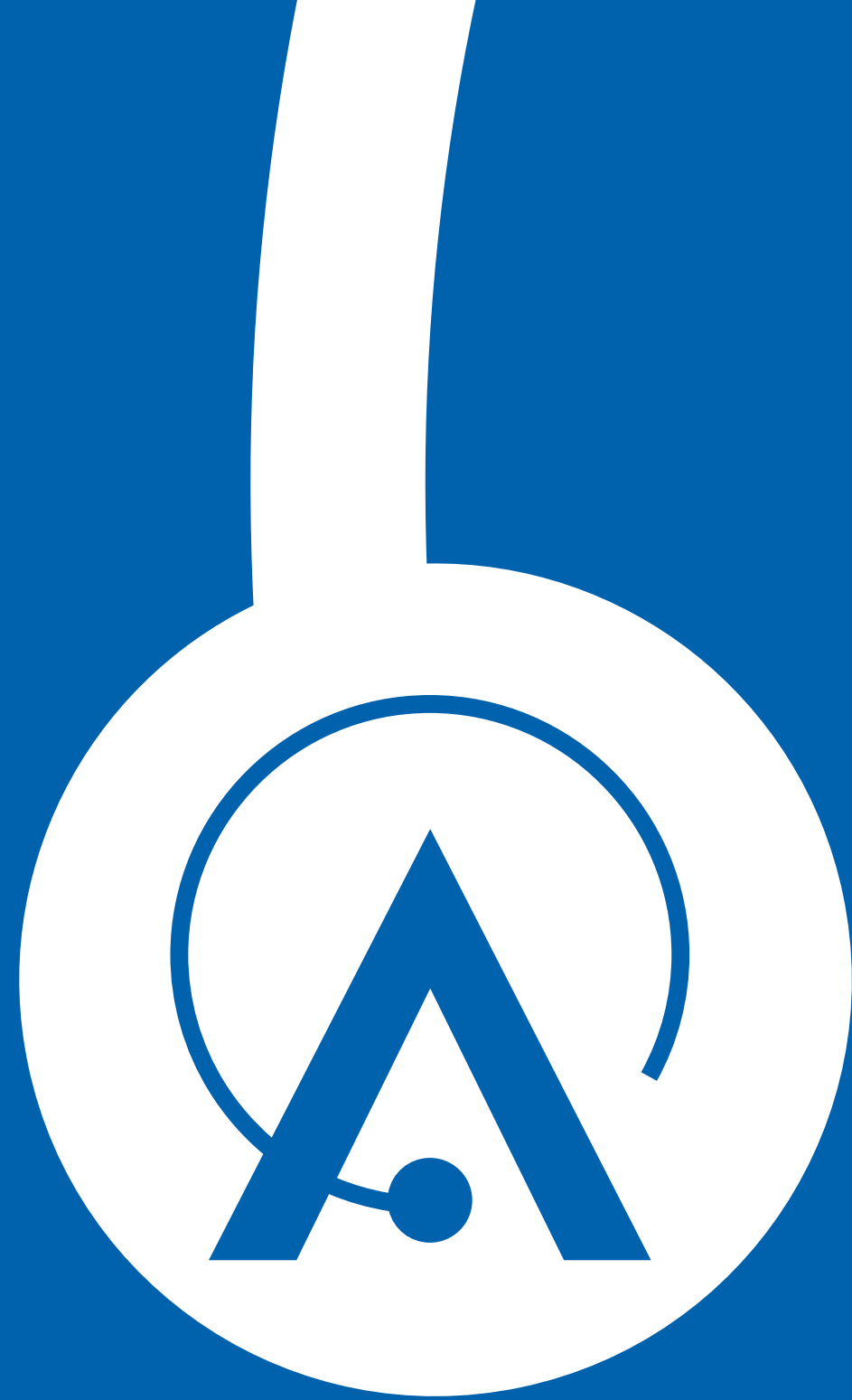
A unique innovation and a disruptive technology for the space industry and many other markets.

- **DNN reduction rate up to 98%.**
- **Nearly identical performance to the original network (less than 5% attrition rate)**

OUR ASSETS

- **Data reduction:** extraction of relevant information, reduction of data to be stored or to be transmitted.
- **Data selection:** interest data selection (presence or absence of an object, image quality analysis).
- **Collaboration between satellites:** the detection of an object by a satellite will condition the acquisition of other elements by the following satellites.
- **Cost reduction:** reduced development and maintenance costs for ground segments; reduced power consumption and carbon footprint of ground servers and server size.
- **Fast data access:** reduces data access time (on-board processing)

- **Multiplatform:**
compatible with a wide variety of HW
- **Multi-sensor :**
available for optical and radar sensors
- **In-flight service update:**
available for the current mission, not just at launch
- **Widely tested:**
tested on a wide range of embedded devices



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TOULOUSE • SAINT-GERMAIN-EN-LAYE • RENNES