AIKO

INFINITE WAYS TO AUTONOMY

Suite
dreams
are made
of this...

AI-POWERED SOLUTIONS
FOR A SIMPLE AUTOMATION OF SPACE OPERATIONS.

FIRST EUROPEAN COMPANY TO DEMONSTRATE DEEP LEARNING ALGORITHMS IN ORBIT.

ITALY
TURIN
HEADQUARTERS

FRANCE
TOULOUSE
BRANCH OFFICE

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esa ASI Agenzia Spaziale Italiana cnes CENTRE NATIONAL D'ETUDES SPATIALES arianespace arianeGROUP ThalesAlenia Space gmv INNOVATING SOLUTIONS

OHB OneWeb TELESPAZIO a LEONARDO and THALES company Tyvak International A Terran Orbital Corporation ENDUROSAT

Introducing the AIKO SUITE, a comprehensive and integrated ecosystem designed to empower autonomy in your infrastructure. **Simply and safely.**

THIRD-PART APPLICATIONS

dynamic**_DANA**

AI-POWERED MANEUVERING

AI-POWERED APPLICATIONS

clear**_CHLOE**

clear**_CHARLES**

AI-POWERED ONBOARD DATA PROCESSING

orbital**_OLIVER**

AUTONOMOUS ONBOARD PAYLOAD & OPERATIONS

USER INTERFACE

gifted**_GENE**

PREDICTIVE MAINTENANCE AND REAL-TIME ANALYSIS

USER ANALYSIS REQUEST

USER FEEDBACK ON ANALYSIS RESULTS
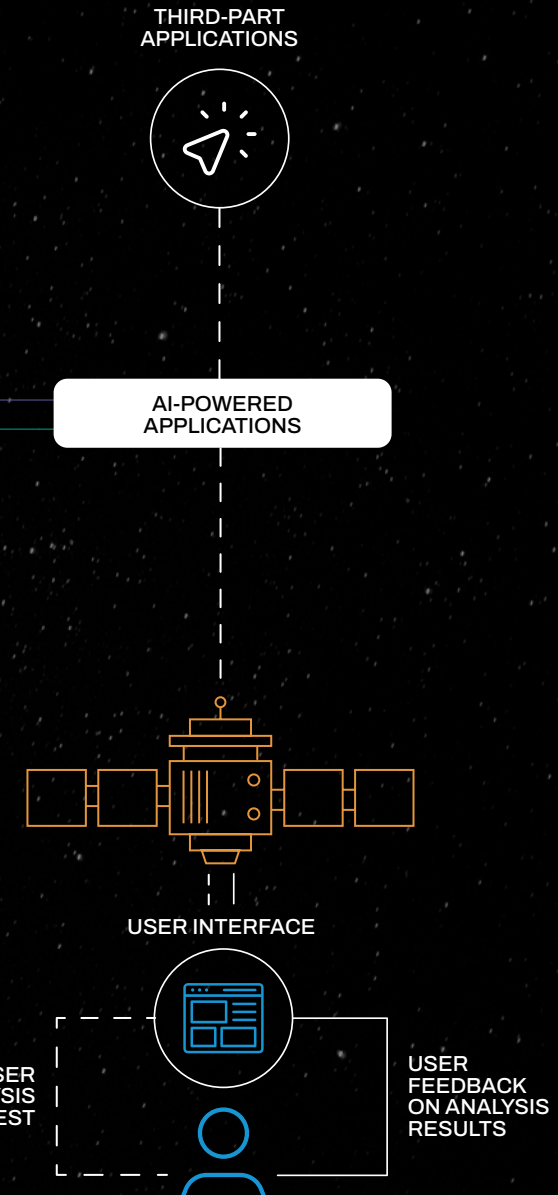
INFINITE WAYS
TO AUTONOMY

AUTONOMOUS
├ SATELLITE OPERATIONS
├ SATELLITE SYSTEMS
└ PROACTIVE DECISIONS

OPTIMAL CONSTELLATION MANAGEMENT

SATELLITE PREDICTIVE MAINTENANCE

ONBOARD
├ EO DATA PROCESSING
└ EO DATA OPTIMISATION

**IN ORBIT SERVICING
& COLLISION AVOIDANCE**

The AIKO SUITE offers autonomy across various
purposes and fields of action. It is adoptable
by MCC (Mission Control Centers), operators,
and manufacturers, thanks to its high adaptability
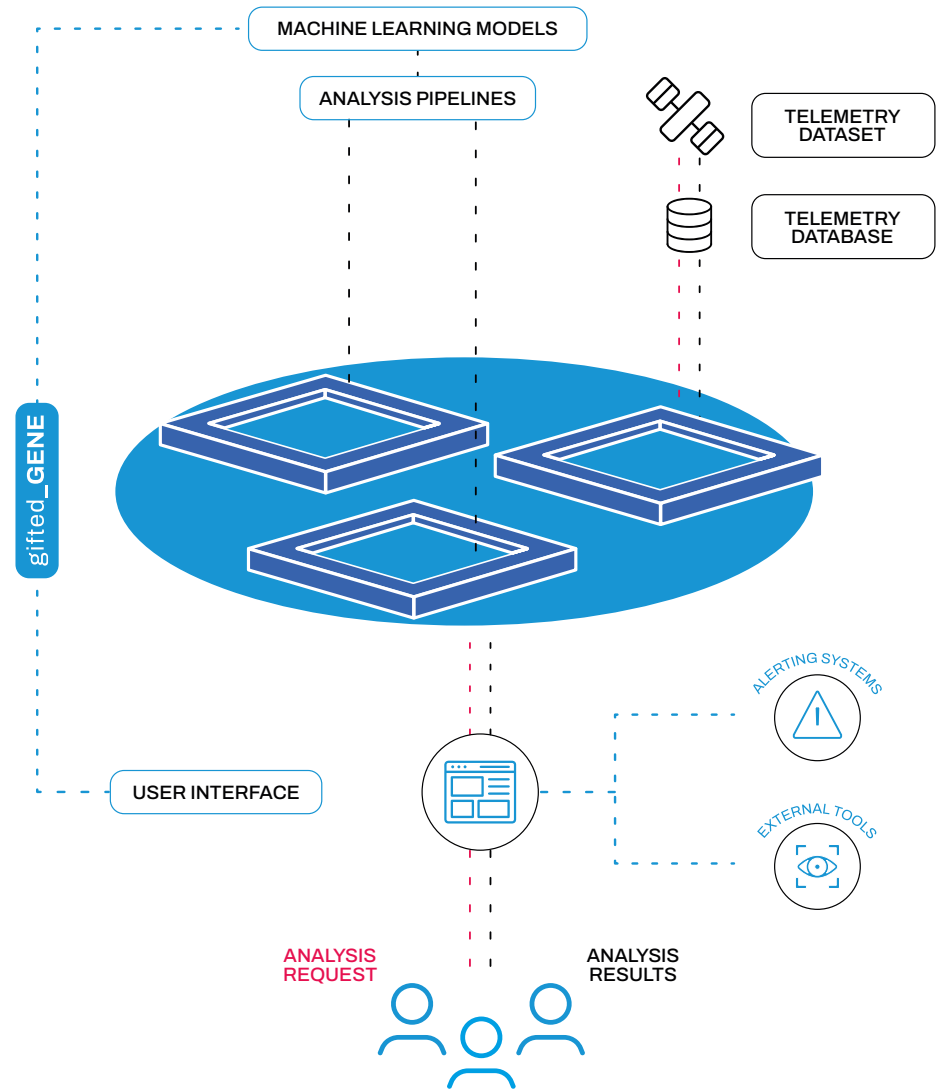to both technical requirements and customization needs.

Nice to meet you
i'm gifted_**GENE**

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TELESPAZIO
a LEONARDO and THALES company   DLR

FIELD-TESTED · FIELD-TESTED ·

THE SIMPLE, COLLABORATIVE PLATFORM **TO EXTEND THE LIFETIME** OF YOUR SATELLITES.

MACHINE LEARNING MODELS

ANALYSIS PIPELINES

TELEMETRY DATASET

TELEMETRY DATABASE

gifted_GENE

ALERTING SYSTEMS

EXTERNAL TOOLS

USER INTERFACE

ANALYSIS REQUEST

ANALYSIS RESULTS

Tailored for mission operators, gifted_**GENE** is a collaborative platform capable of analysing vast amounts of telemetry data. **Thanks to its AI-powered core,** gifted_**GENE** enables predictive maintenance in the mission control centre, identifying trends and anomalies days in advance.

ONE PLATFORM FOR CONSTANT AWARENESS,
AT ANY SCALE.

TELEMETRY STREAMS CORRELATION

gifted_**GENE** analyses all your streams within seconds, comprehending the behavior of each satellite's component and monitoring the status of the entire system.

EARLY ANOMALIES DETECTION

Thanks to its AI-powered core, gifted_**GENE** compares historical and real-time data, and predicts possible anomalies on average 4 days in advance, with certain predictions recorded even two months in advance.

SERVICE DOWNTIME REDUCTION

By preventing critical failures, gifted_**GENE** reduces downtime of your satellites, prolonging the lifespan of your mission.

REDUCED DOWNTIME .... Downtime reduced by 50%.

PREDICTIVE MAINTENANCE .... Up to 4 days of early anomaly detection.

ENHANCE EFFICIENCY .... 150% more anomalies detected vs traditional routines.

REDUCED RISK OF SHUTDOWN .... Shutdown risk reduced by 65%.

AVOID HUMAN ERRORS .... Down to 50% time spent on repetitive tasks.

Nice to meet you,
i'm orbital_OLIVER

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THE ALL-IN-ONE SOFTWARE
TO ENABLE AUTONOMOUS PAYLOAD AND PLATFORM OPERATIONS. **SAFELY.**

ONBOARD
AUTONOMY

ANALYSE
THE ENVIRONMENT

IDENTIFY THE
BEST BEHAVIOR

UPDATE
ACTIONS

GROUND
OPERATIONS
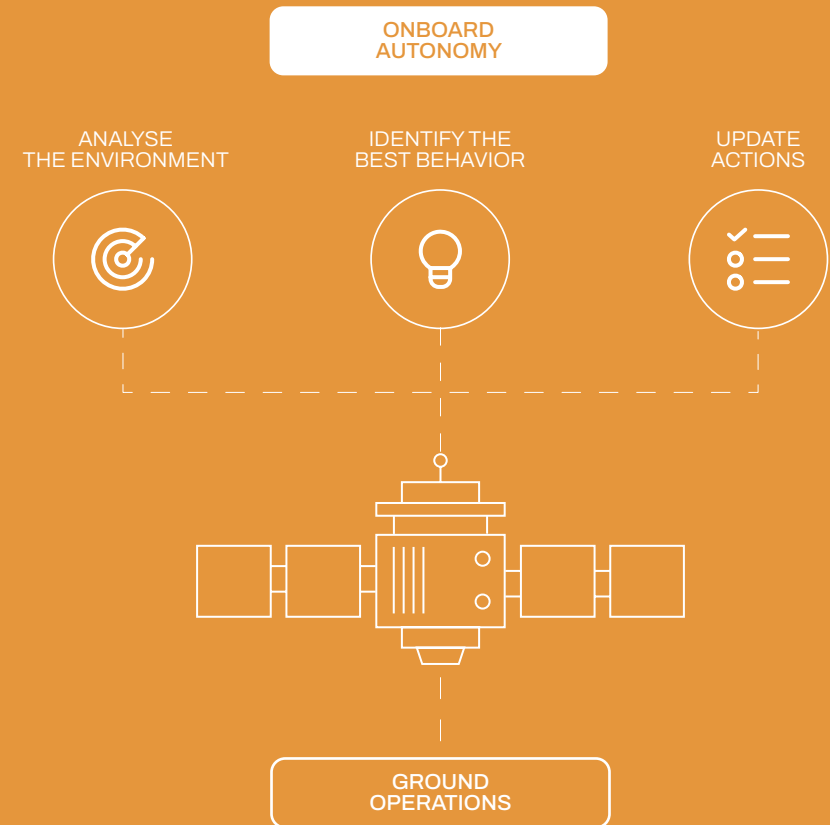
Enhance your mission performance with our AI-powered operating system. Maintain seamless control through integration with your operations pipeline. Customize your level of automation with specialized applications, supported by our team.

ONBOARD PLANNING

Extended duty cycles and efficient management of multiple instruments to maximize performance and optimise resource usage.

TELEMETRY PROCESSING

Diagnostic and forecast-based analysis, enabling timely assessment of operational conditions.

PAYLOAD PROCESSING

Extract insights from payload data in real-time through onboard data processing capabilities.

Exploit the actionable information to refine mission schedule, prioritise the download of data, and increase mission efficiency.

PROACTIVE DECISIONS, REAL TIME ACTIONS.
ALL IN ORBIT.
ALL IN ONE.

DATA MANAGEMENT

FDIR

COMMUNICATION SYSTEMS
MANAGEMENT

ELETRICAL POWER
SYSTEM MANAGEMENT

CONFLICT RESOLUTION

PROACTIVE PLANNING

PLATFORM MONITORING

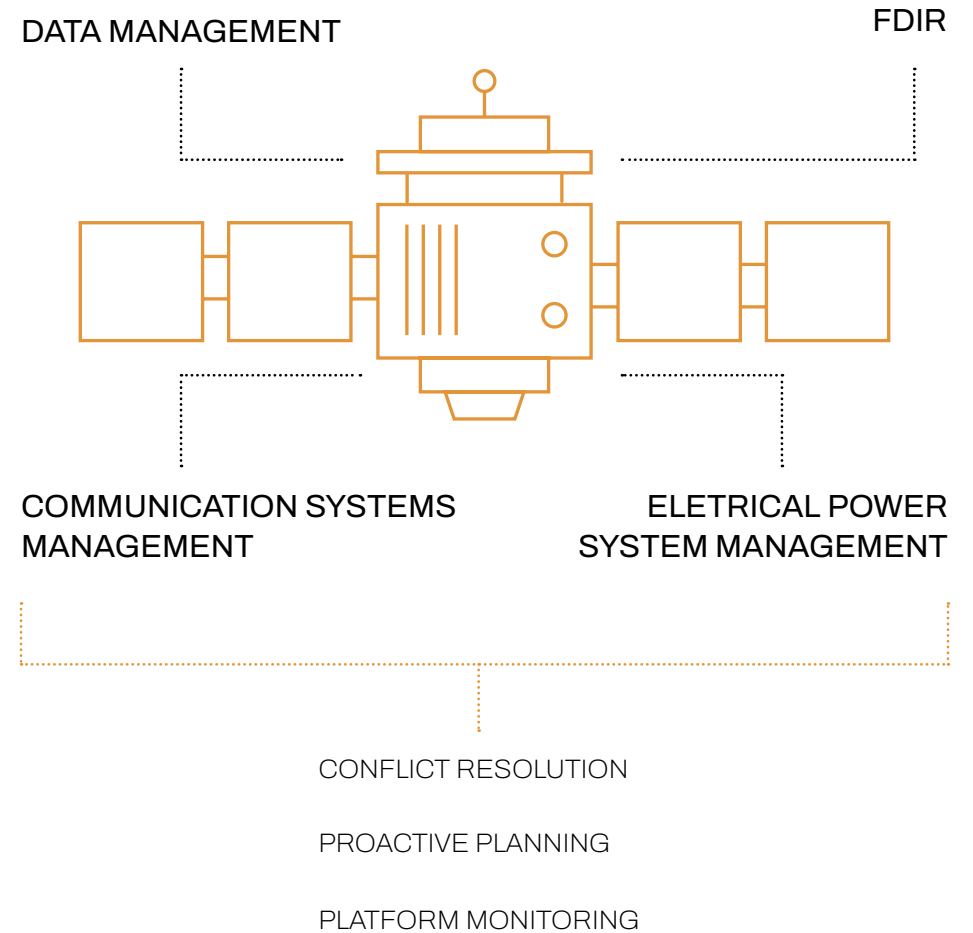## HIGHER FRACTION OF PROFITABLE DATA

Up to 50% increase in payload duty cycle thanks
to optimal resource handling.

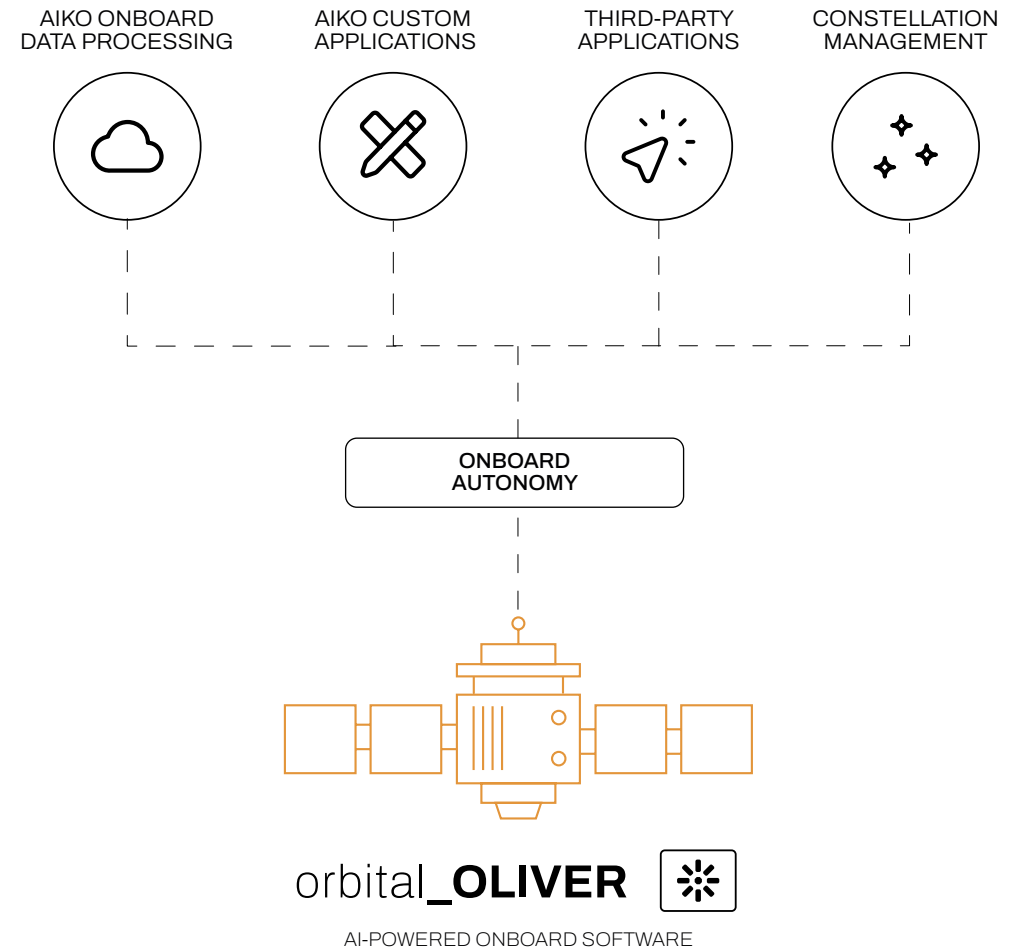## REDUCED LOAD ON HUMAN OPERATORS

Down to 50% time spent on repetitive tasks.

DOWNLINK OPTIMISATION

Down to 90% in downlink needs by insight extraction.

THE GATEWAY
TO ONBOARD
AI APPLICATIONS

AIKO ONBOARD
DATA PROCESSING

AIKO CUSTOM
APPLICATIONS

THIRD-PARTY
APPLICATIONS

CONSTELLATION
MANAGEMENT

ONBOARD
AUTONOMY

orbital_**OLIVER**

AI-POWERED ONBOARD SOFTWARE

orbital_**OLIVER** enables the installation of multiple applications
to meet all your needs. Moreover, it autonomously manages AIKO
applications through ou integrated ecosystem.

Whether you want to test your own application or install third-party ones,
orbital_**OLIVER** is designed to have open API and a dedicated SDK.

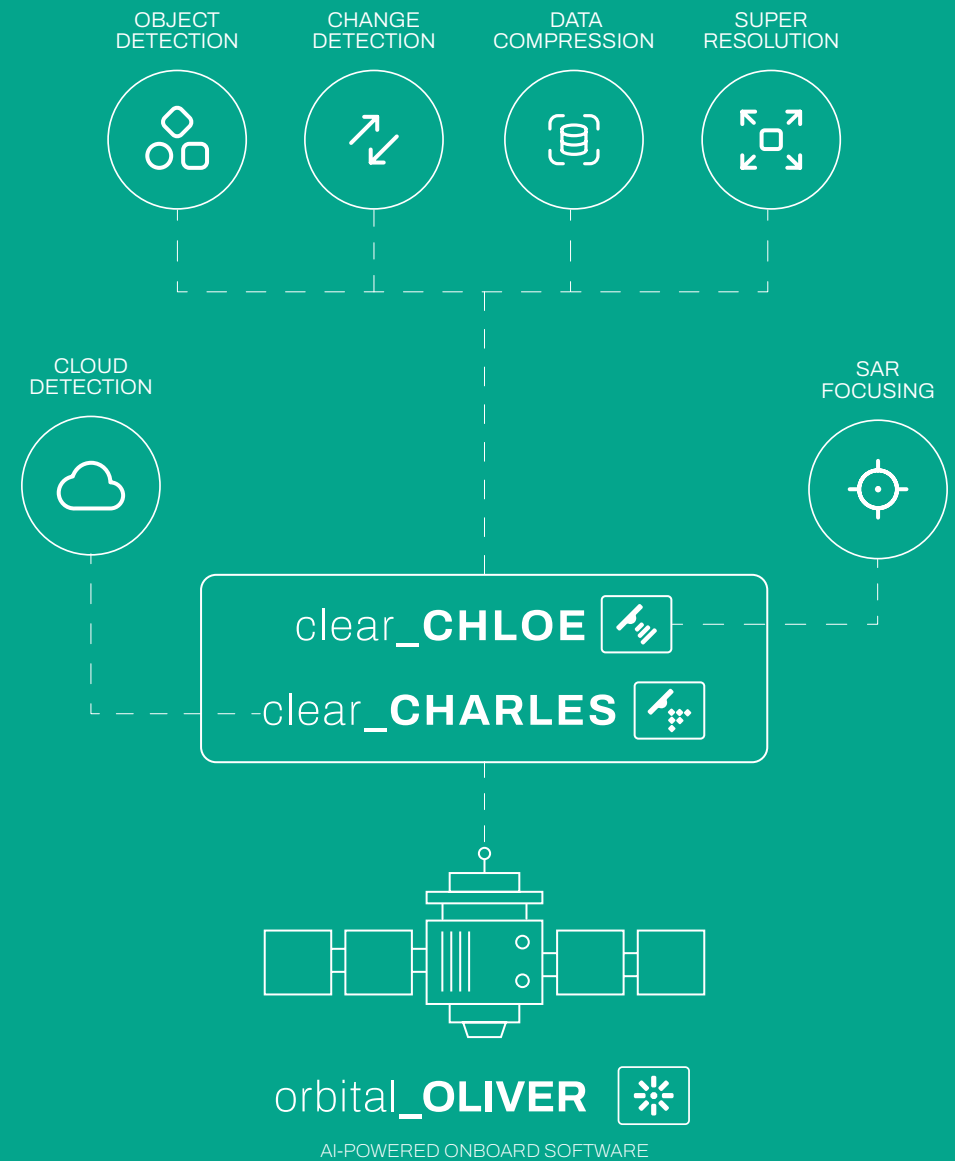# Nice to meet you, we're **clear_CHLOE** and **clear_CHARLES**

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planetek italia | OFFICINASTELLARE | D-ORBIT

FIELD-TESTED · FIELD-TESTED

LET'S BE CLEAR_
SMART,
AUTONOMOUS
ONBOARD DATA
PROCESSING.

**WHEN IT COMES TO PROFITABLE DATA, MINIMIZING
LATENCY AND OPTIMIZING TIMING ARE CRUCIAL.**

AIKO's clear_**CHARLES** and clear_**CHLOE** solutions
enable autonomous functionality directly onboard
satellites, removing the dependency on continuous
ground intervention. By processing data on the satellite
itself, these solutions drastically reduce latency and
improve operational efficiency in dynamic environments.
Leveraging AIKO's extensive space heritage,
clear_**CHARLES** and clear_**CHLOE** ensure your satellite
delivers pre-processed, selected data and images, making
your product ready for immediate use as soon as it's
received—boosting both speed and value.

OBJECT
DETECTION

CHANGE
DETECTION

DATA
COMPRESSION

SUPER
RESOLUTION

CLOUD
DETECTION

SAR
FOCUSING

clear_**CHLOE**

clear_**CHARLES**

orbital_**OLIVER**

AI-POWERED ONBOARD SOFTWARE

PROCESSED, SELECTED, DELIVERED READY TO USE.
ELEVATING ORBITAL FEATURES

Thanks to its versatility, clear_**CHARLES** (optical) and clear_**CHLOE** (SAR) address a broad spectrum of applications.
Whether it's enhancing agricultural practices, monitoring environmental changes on Earth, managing sea traffic, or supporting defense operations, the clear_ suite is equipped to meet these diverse needs.
Furthermore, the suite is designed for seamless integration with the most widely used GPUs and FPGAs, ensuring compatibility with various hardware setups and maximizing its deployment potential across different infrastructure configurations.

HIGH COMPATIBILITY

Cross-platform compatibility

UNMATCHED SPEED

2x faster than traditional processes

POWERFUL PERFORMANCE
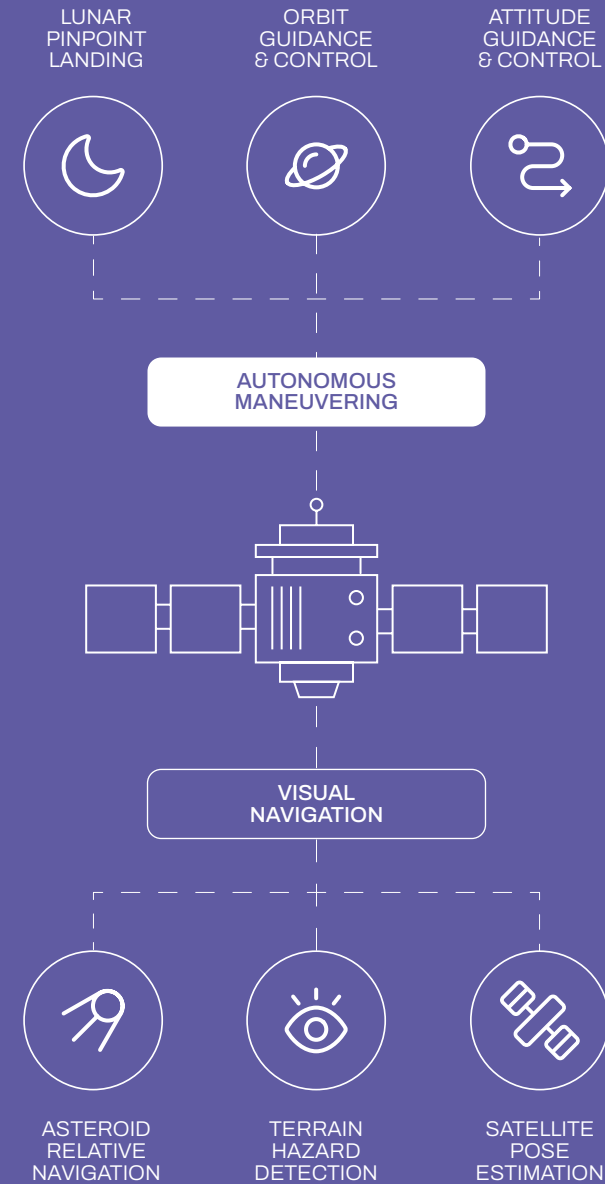
Less than a 10% F1 point gap respect traditional processes

Nice to meet you,
i'm dynamic_DANA

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PANGEA AEROSPACE · gmv INNOVATING SOLUTIONS · deimos · cnes CENTRE NATIONAL D'ÉTUDES SPATIALES · esa · ASI Agenzia Spaziale Italiana

SMART MANEUVERING, FOR A SAFER SPACE.

LUNAR PINPOINT LANDING

ORBIT GUIDANCE & CONTROL

ATTITUDE GUIDANCE & CONTROL

AUTONOMOUS MANEUVERING

VISUAL NAVIGATION

ASTEROID RELATIVE NAVIGATION

TERRAIN HAZARD DETECTION

SATELLITE POSE ESTIMATION

AIKO operates across the whole **Space Situational Awareness and Space Traffic Management** value chain, deploying **AI-powered autonomous solutions** capable of maneuvering satellites while adapting dynamic environment of lower earth orbit, ensuring **security in space** without direct human supervision.

GUIDANCE, NAVIGATION, CONTROL.
FULLY AUTOMATED,
PERFECTLY CONTROLLED.

AIKO's dynamic**_DANA** suite of algorithms, specifically dedicated to Guidance, Navigation, and Control, enables the autonomous execution of a variety of operations, from station keeping to in-orbit servicing. Currently, the suite is focused on specific tasks such as collision avoidance, mapping unidentified objects, and approaching designated targets. dynamic**_DANA** represents an evolving research line, aimed at providing satellite operators with a comprehensive package designed to minimize the latency in action-reaction due to space-to-ground communication. Additionally, it optimizes fuel expenditure, making it a highly efficient tool for the future of autonomous space operations.

COLLISION AVOIDANCE   **SERVICING**

ORBIT ADJUSTMENTS   **MAPPING**

DEBRIS REMOVAL   **INSPECTION**

ORBIT MAINTENANCE   **DOCKING**

MORE AUTONOMY IN SPACE, FOR A BETTER LIFE ON EARTH.

With over 10 years of experience and proven heritage both in orbit and in the field, AIKO's solutions have significantly optimized mission operations and infrastructure maintenance, driving efficiency and reliability in space missions. Moreover, through the AIKO PARTNER PROGRAM, AIKO supports businesses in integrating AI processes quickly and seamlessly for specific use cases, while also embedding valuable expertise into teams. This program prepares companies for future challenges by ensuring they can effectively leverage AI technology within their operations. More efficiency, faster profitable data, and more value to human time—this is what we bring to your business.

STRONG HERITAGE

Over 10 years of experience with proven results.

HIGH COMPATIBILITY

Ready-to-use software for easy and seamless integration.

AIKO PARTNER PROGRAM

Test it before adopting it, with multiple benefits for your business and R&D.

DISCOVER MORE

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