# AI4EO)

Sentinel-2 for Land Management challenge

Prize Catalogue
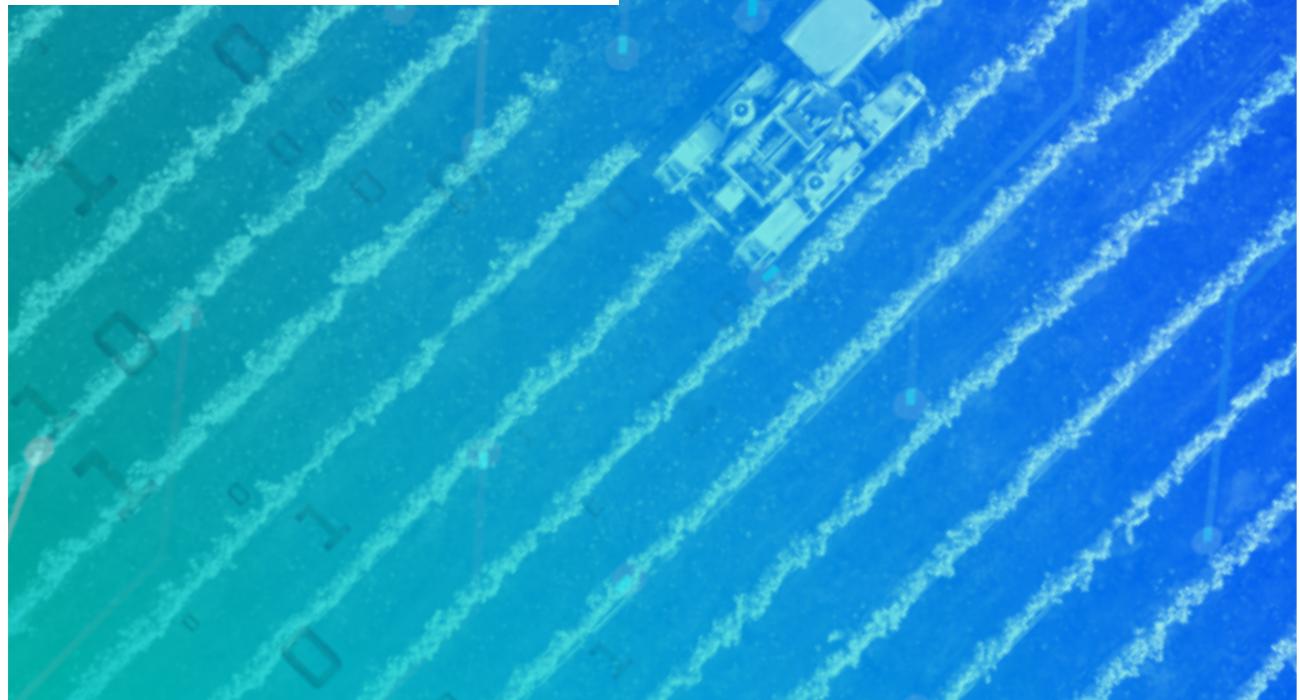
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AI4EO)
A bridge between EO and AI

Introducing AI4EO

AI4EO is an initiative from the Φ-lab of ESA's Directorate of Earth Observation Programmes. It strives to bring the worlds of Artificial Intelligence and Earth Observation closer together to kindle and encourage interaction and collaboration.

Sentinel-2 for Land Management challenge

Agriculture plays a central role globally by providing food for humans and livestock or material for industrial processes. It is a driver of economic growth and will play an essential role in reducing the impact of climate change and in supporting the greening our economies. Accurate and reliable agricultural data is therefore paramount to ensure food security and global subsistence.

Detecting small agricultural parcels

The objective of this challenge to develop solutions to extract as much information as possible in agricultural areas from Copernicus Sentinel-2 images. Your aim will be to recognise agricultural plots using pixels smaller or narrower than a native Sentinel-2 pixel (10 metres).

Why?

EO data has become an invaluable source of information in many application areas, providing global coverage at high spatial and temporal resolutions. Satellite data has proven particularly well suited to monitor agricultural activities, allowing to increase productivity, limit the use of fertilisers and pesticides and to maximise the impact of corrective interventions.

The imagery acquired by the Copernicus Sentinel satellites, which is available on a free and open basis, has opened up new and unique opportunities. However, despite the quality and value of Sentinel data, factors such as cloud coverage, resolution and processing limitations tend to hamper their uptake. This limitation is something we would like to tackle.

The fragmented agricultural parcels which dominate the landscape in many areas of Europe represent a challenge for sustainable land management. Is your method the best to detect small parcels in Sentinel-2 pixels? The most successful methods could be eventually considered for benchmarking currently applied methodologies.

How it works:
The AI4EO Prize catalogue

This catalogue presents the available prizes for the top three teams and their members as well as the winner of the special Students prize. Each winning team receives "AI4EO points" that can be used to assemble their prize bundle from the catalogue – It's like redeeming points from a consumer rewards and loyalty programme!

Individual and team prizes

Some prizes are individual, others are team prizes. The teams can either chose to spend the points together or share the points and spend them as individuals or a combination of both. The prizes are marked accordingly as

individual prize

team prize

Restrictions

Some prizes come with restrictions. These can be found in small print in the description of those specific prizes.

AI4EO points

Winner
30.000
AI4EO points

2nd Prize 20.000
AI4EO points

3nd Prize
10.000
AI4EO points

Best student team
10.000 AI4EO points

Order for choosing prizes on a "first come first served" basis is the following: 1st, 2nd, student team, 3rd prize. The assigned team leader is responsible for communicating the selected prize(s) to the organisers.

Platinum Sponsor

L3HARRIS™

L3Harris Technologies is an agile global aerospace and defence technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. L3Harris Geospatial has more than 40 years of experience developing products to visualise, analyse, and manage geospatial imagery and scientific data.

ENVI and ENVI SARscape are the L3Harris Geospatial flagship products leveraging advanced geospatial analytics, machine learning, and remotely sensed data to make better decisions. The winning teams have the chance to win a 2-year access to ENVI worth 20.000 € (but offered for only 6,000 AI4EO points as a further bonus)

Gold Sponsor

planet.

Planet is the leading provider of global, daily satellite imagery and insights. Planet is driven by a mission to image all of Earth's landmass every day and make global change visible, accessible, and actionable. Planet designs, builds, and operates the largest fleet of imaging satellites and online software, tools, and analytics needed to deliver data to users.

Decision-makers in business, government, and organisations use Planet's data and machine learning-powered analytics to solve some of our world's toughest challenges. The winning teams will be able to claim, as a prize, data in the value of up to 15.000€ from Planet's vast archive that is growing by the hour.

Platinum Sponsor
Prices

L3HARRIS™

20.000 EUR worth of **2 years free ENVI+IDL and 2 selected modules term license** (FX, ACM, DL, DEM, CS)*

AI4EO points	Amount	Unit
6..000	1	increments

4-days classroom training in ENVI or SARscape for EU participants.
See regional training schedule on www.L3Harrisgeospatial.com**

AI4EO points	Amount	Unit
2.000	1	increments

* Adherance to EULA

** Limited to EU participants, adherance to EULA, availability of training slots (e.g. Covid19)

Gold Sponsors
Prices

planet.

3 x data prizes

AI4EO points	Amount	Unit
5.000	3	year

Take part in the #AI4Sentinel2 challenge to win AI4EO points and exchange them for prizes!

Help us develop the use of Copernicus Sentinel imagery for agricultural applications

> **17.2 per cent of the world's population lack regular access to nutritious and sufficient food.**
>
> UN report State of Food Security and Nutrition in the World 2019

AI4 copernicus

Special "acceleration advisory" sessions
to help winners optimise their applications
to the open calls of the AI4Copernicus project

AI4EO points	Amount	Unit
1.000	6	1/2 day

Promotion
Further information coming soon.

AI4EO points	Amount	Unit
-	-	-

WEkEO

2x 1 year of Virtual Processing Environments
(8 vCPUs, 4 TB for Object storage, 64 GB RAM…)
+ 1 day of training

AI4EO points	Amount	Unit
5500	2	year

6 x 1/2 days of training on WEkEO Virtual Processing Environments by WEkEO experts

AI4EO points	Amount	Unit
1.000	6	1/2 day

> **We're using this quantifiable global data [EO] with multiple stakeholders to improve agricultural productivity, land and water management []**
>
> World Bank Group

GMATICS
BIG GEOSPATIAL DATA MADE READY

———

6 days of technical assistance on AI/EO implementation, with use of NVIDIA TESLA V100 GPU for training data preparation

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AI4EO points	Amount	Unit
5.000	1	module

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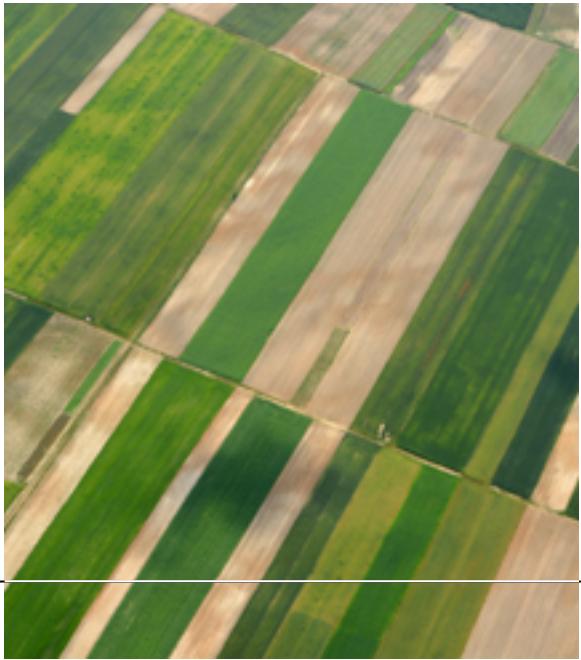
6 days of technical assistance on solution engineering, including porting on cloud

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AI4EO points	Amount	Unit
5.000	1	module

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6 days of coaching on business plan analysis and preparation by Marcello Maranesi, former CEO of Eurimage and e-GEOS

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AI4EO points	Amount	Unit
5.000	1	module

CREODIAS

———

500 EUR worth credits for cloud computing resources, together with direct access to Earth Observation data on CREODIAS platform and technical support for 2 years

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AI4EO points	Amount
500	10

Winners can decide about their own cloud configurations according to their needs, while Cloud Ferro can provide recommendations

AI4EO)

SINERGISE

1 year Enterprise-L subscription to Sentinel Hub

Up to 1M processing units per month.
Up to 3M processing units in Batch mode per month
Individual support

AI4EO points	Amount	Unit
10.000	1	year

1 year Enterprise-S subscription to Sentinel Hub

Up to 400.000 processing units per month.
Up to 1.2 M processing units in Batch mode per month
Individual support

AI4EO points	Amount	Unit
5.000	1	year

1 year Basic subscription to Sentinel Hub

Up to 70.000 processing units per month.
Up to 210.000 processing units in Batch mode per month

AI4EO points	Amount	Unit
1.000	1	year

3 x 1 month part-time paid internship

with opportunity to work with Sinergise's team on ongoing machine learning projects (remotely, with possibility to get onboarded at the end of internship)

AI4EO points	Amount	Unit
3.000	3	month

1x Sentinel Hub goodies

AI4EO points	Amount
100	1

MEEO
Meteorological Environmental Earth Observation

1 year ADAM standard services

Access to open and extended datasets
Limitation on monthly user queries or data volume quota cumulative with Jupyter and APIs

AI4EO points	Amount	Unit
2.000	1	year

1 year ADAM advanced services

Access to open and extended datasets
Access to analytics functionalities
Extended monthly quota

AI4EO points	Amount	Unit
3.000	1	year

6 x 1 month full-time paid internship to support
Big Data exploitation tasks (onsite at Ferrara / remotely)

AI4EO points	Amount	Unit
1.000	6	month
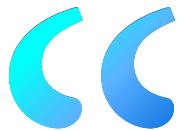
> **The contribution of small farms to local food supply, food security and food sovereignty is widely acknowledged at a global level. [] All in all, they correspond to 67% of all farms in the EU.**

N.Guiomar et al. 2018

planetek italia

Promotion of the solution through the Rheticus international resellers network

AI4EO points	Amount	Unit
5.000	1	module

Six days of business support for fundraising and meetings with business angels and venture capital

AI4EO points	Amount	Unit
6600	1	module

Promotion in international events

AI4EO points	Amount	Unit
4200	1	module

1 year free subscription to Hexagon Geospatial software for EO data processing
(Imagine and Imagine Photogrammetry)

HEXAGON GEOSPATIAL

AI4EO points	Amount	Unit
9.000	1	year

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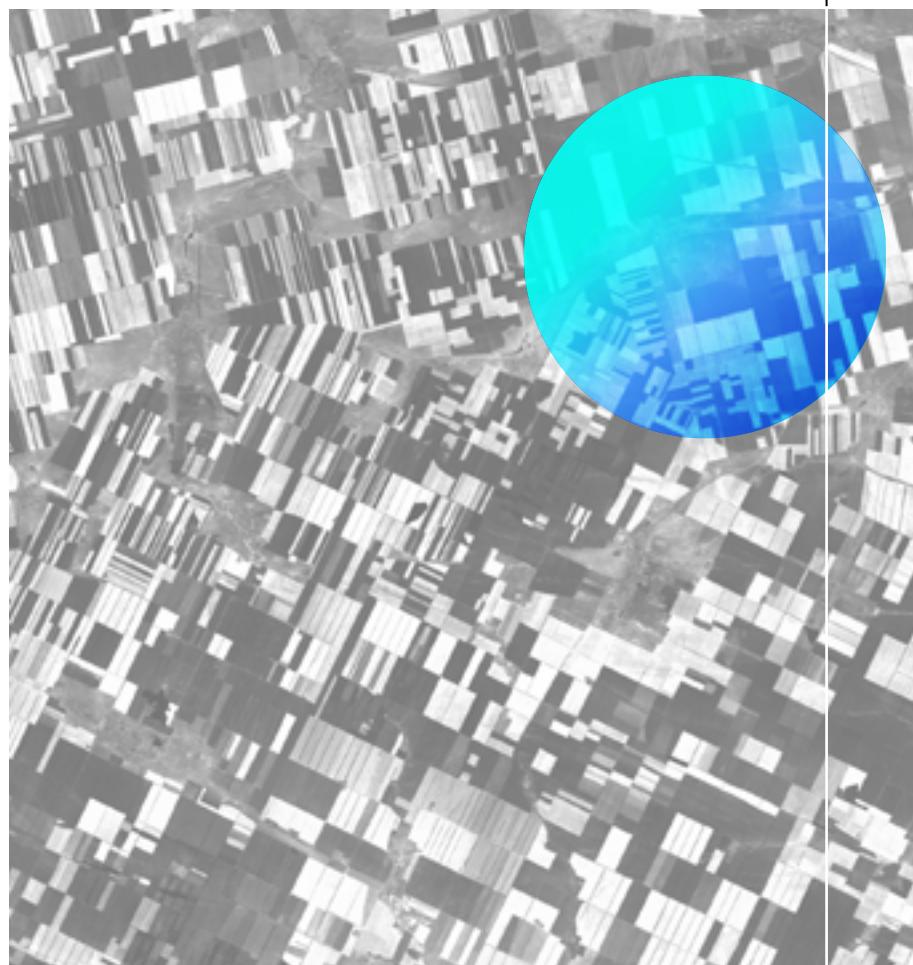
6 days of coaching on access-to-finance for high tech start-ups
by Rainer Horn, leading expert in fund raising

AI4EO points	Amount	Unit
7200	1	module

6 x 1 day of coaching on promotion and communication in Earth Observation
by Stéphane Ourevitch, leading expert in communication

| AI4EO points	Amount	Unit
1200	6	days

STUDIOMAPP

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3 x 1 month part - time paid internship with opportunity to work with Studiomapp's team on ongoing Climate projects (remotely, with possibility to get onboarded at the end of internship)

AI4EO points	Amount	Unit
2.000	3	month

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3 x 1 day consultancy / mentoring support for Startup in reviewing Business plan or Project Proposals for funding requests (in full Confidential agreement)

AI4EO points	Amount	Unit
1.000	3	day

TRILATERAL RESEARCH

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3 days of data protection and ethics consultancy with Trilateral's experts who will provide guidance to support compliance with EU and national legislation and alignment with societal expectations

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AI4EO points	Amount	Unit
2.500	1	module

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1 month part-time paid internship with the opportunity to shadow Trilateral's Senior Researchers and co-write journal and blog articles

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AI4EO points	Amount	Unit
2.000	1	month

A toolkit for conducting a preliminary data protection impact assessment, which can be a legal requirement, that provides tools and guidance enabling you to identify risks and create a mitigation plan for the design of a service or technology

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AI4EO points	Amount	Unit
5.000	1	module

EarthPulse

Dataset generation with SCAN,
EarthPulse labelling tool

AI4EO points | Amount
7.000 | 1

**6 days of coaching on Artificial intelligence,
Machine learning & NN development** and
training by Juan Pedro, EarthPulse AI expert

AI4EO points | Amount | Unit
5.000 | 1 | module

**6 days of coaching on product development
& business strategy** by Laura Moreno, mentor
of Copernicus Accelerator, Barcelona Activa
and Astropreneurs

AI4EO points | Amount | Unit
5.000 | 1 | module

VERHAERT | MASTERS IN INNOVATION

**4 days of coaching on
data science, statistical
analysis, AI algorithm
development, bias**
by Jan Alexander,
lead AI engineer

AI4EO points | Amount | Unit
4.000 | 1 | module

**4 days of coaching on
either user uptake,
validation experiments
OR design of website
and UI** by Ben Goovaerts,
Design consultant (digital
& product)

AI4EO points | Amount | Unit
4.000 | 1 | module

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www.ai4eo.eu

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hello@ai4eo.eu

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