

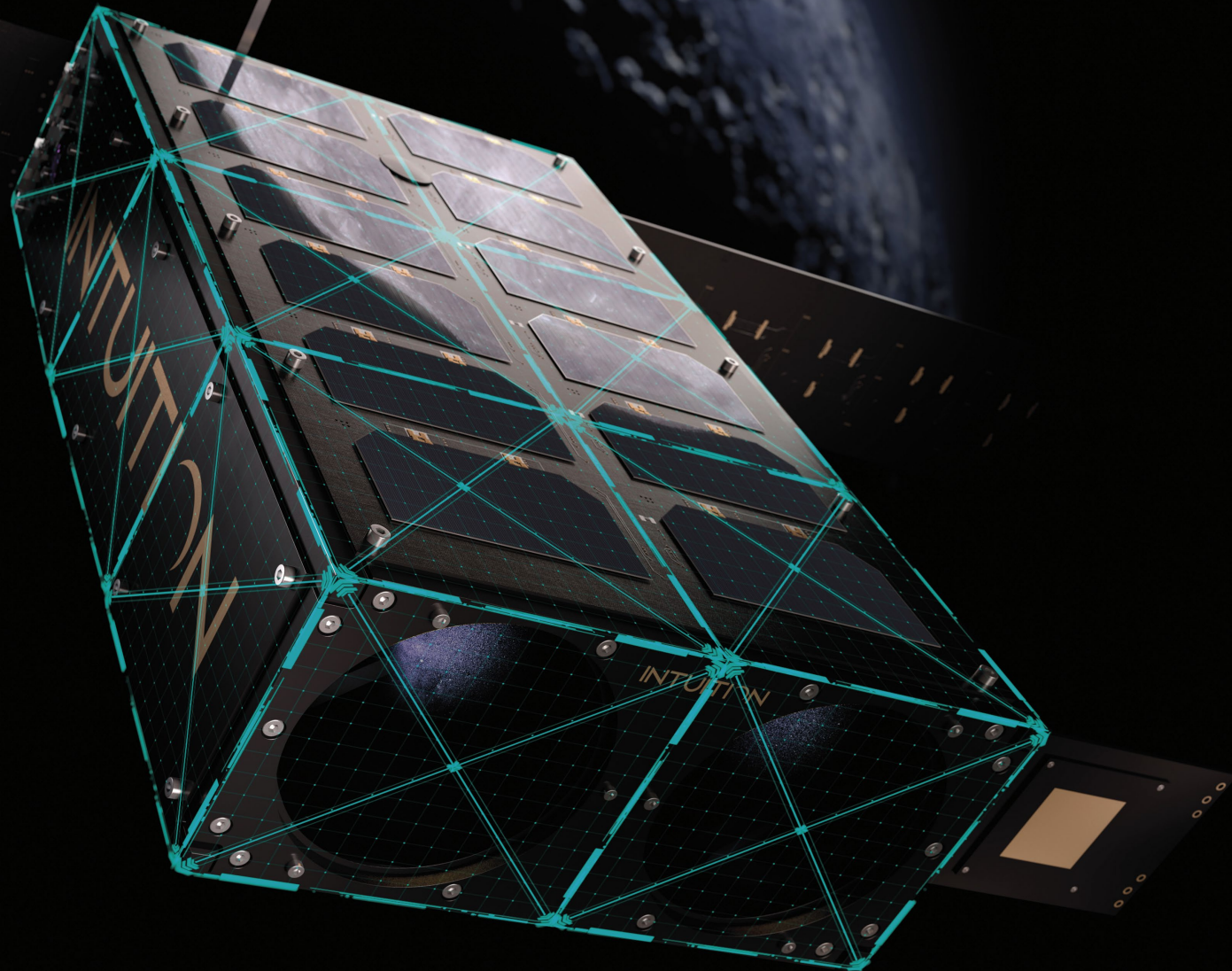


Politechnika
Śląska

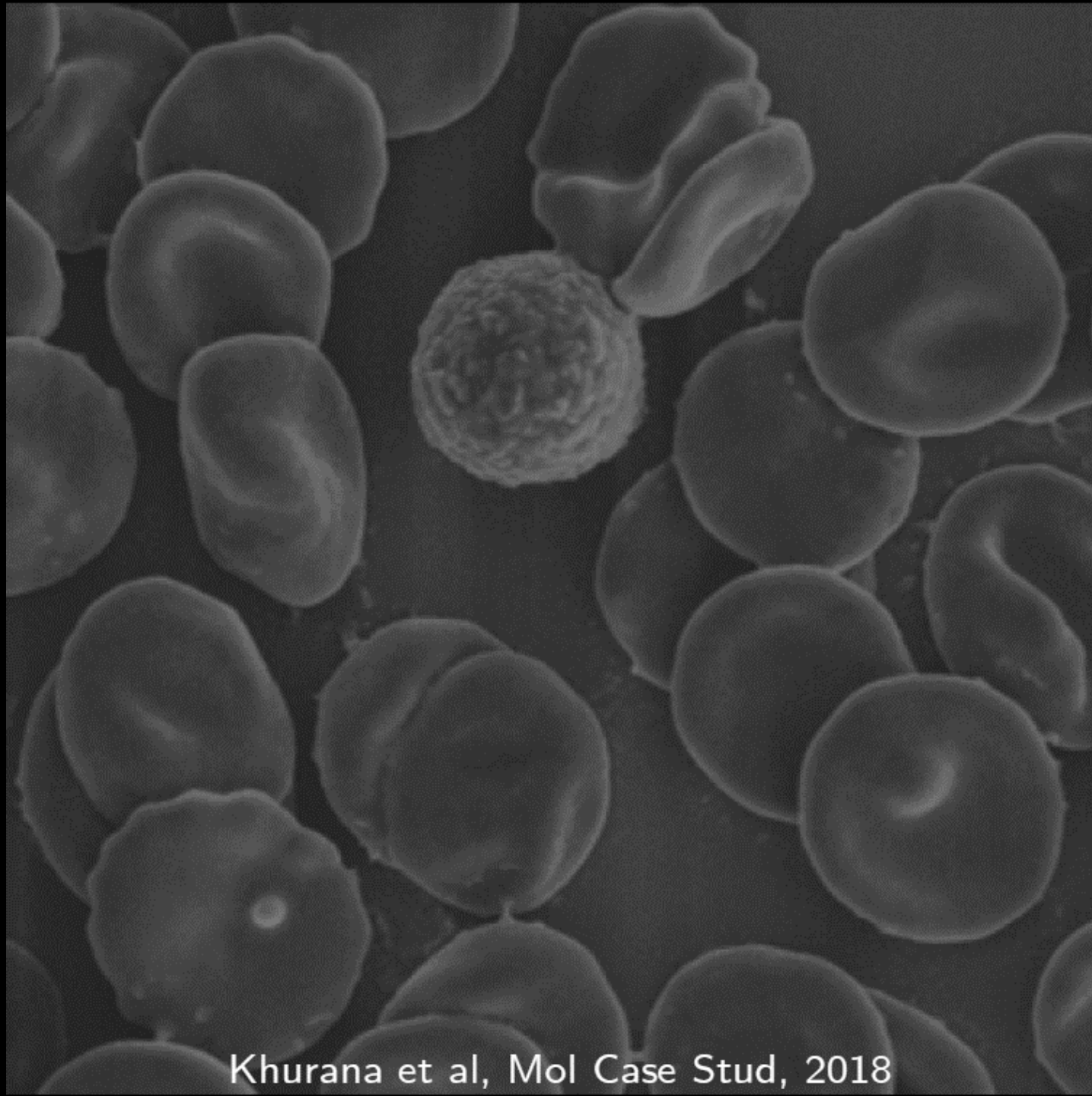
Jak głębokie uczenie zmienia orbitę: Analiza danych na pokładzie satelitów

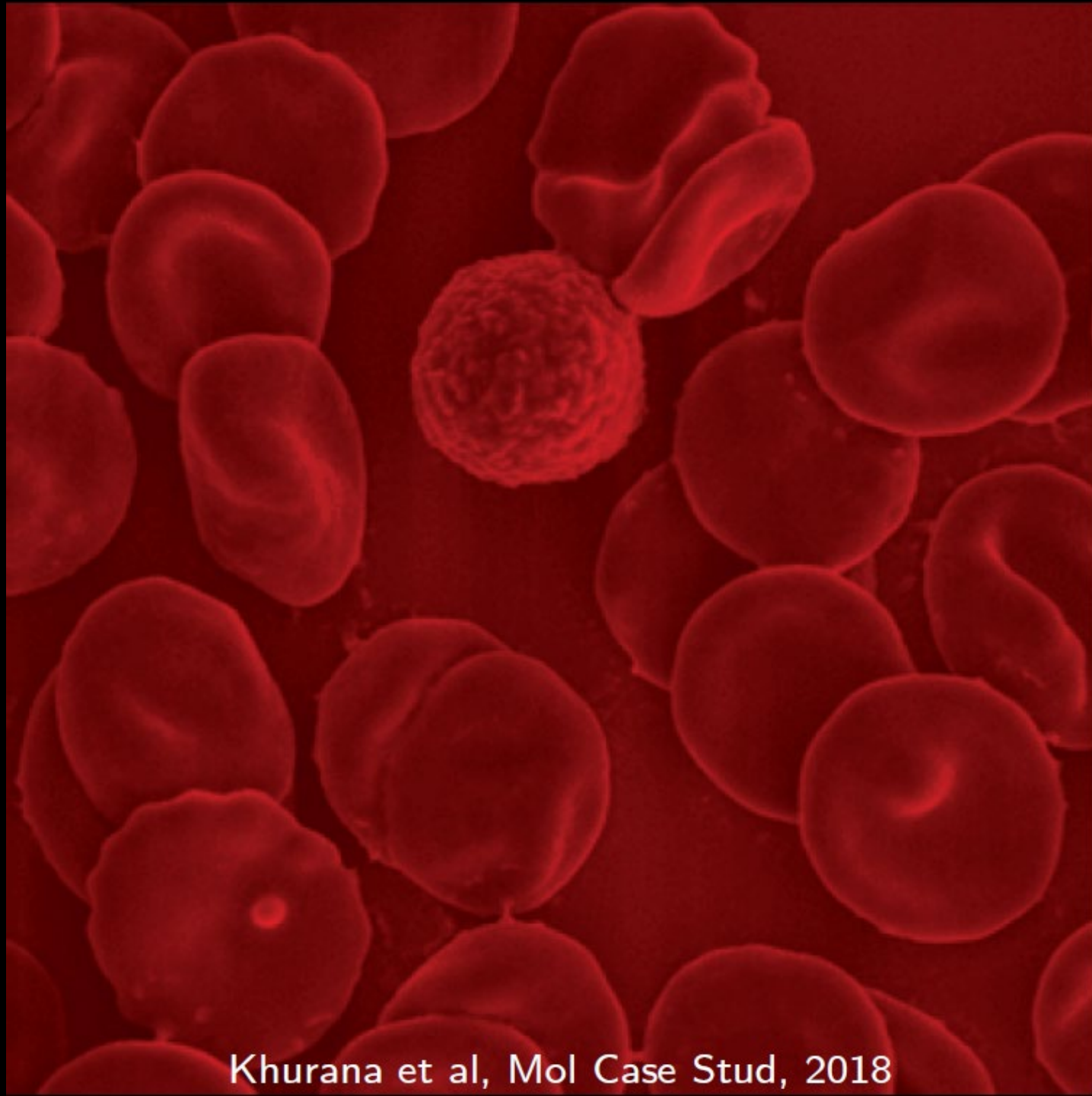
Jakub Nalepa

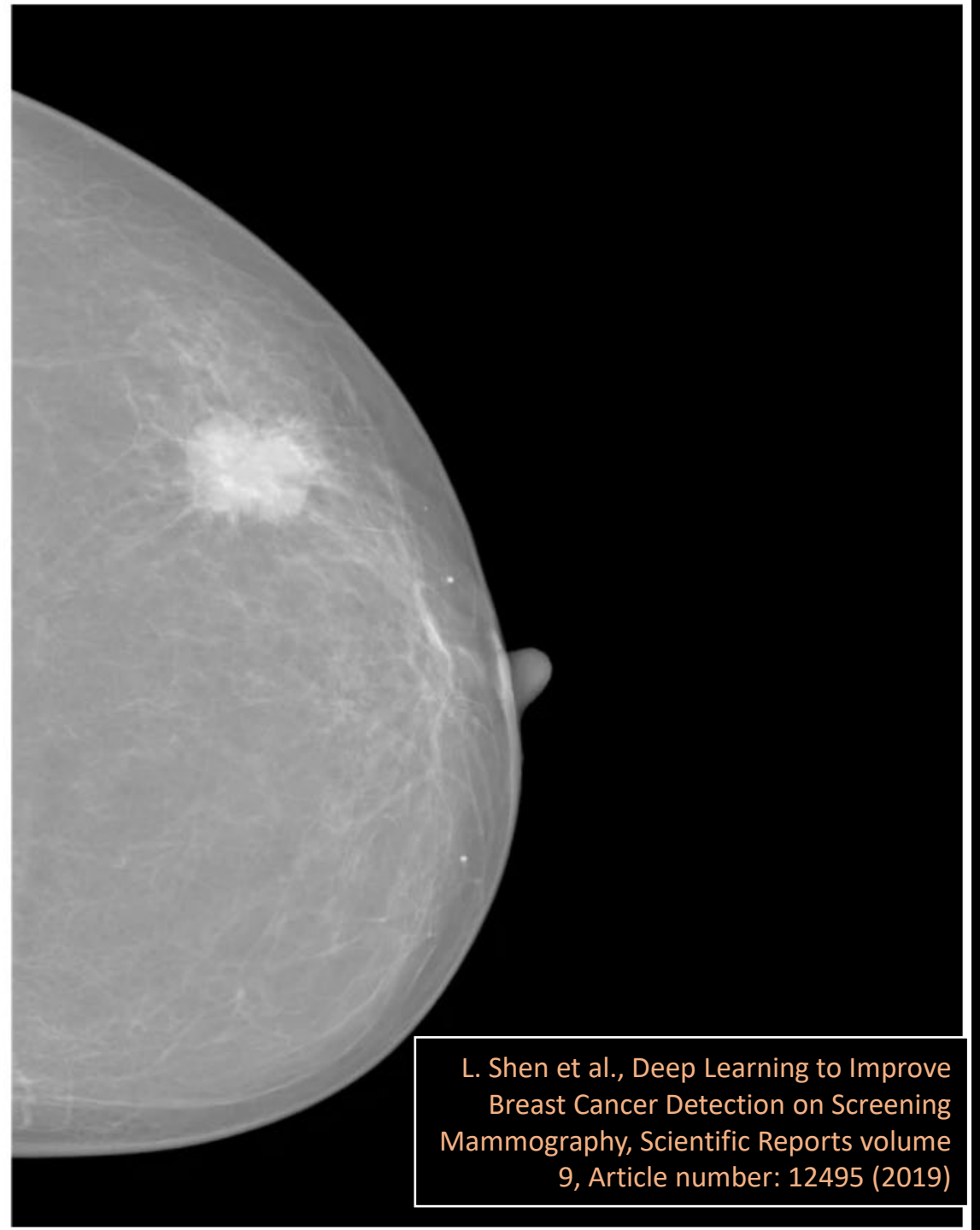
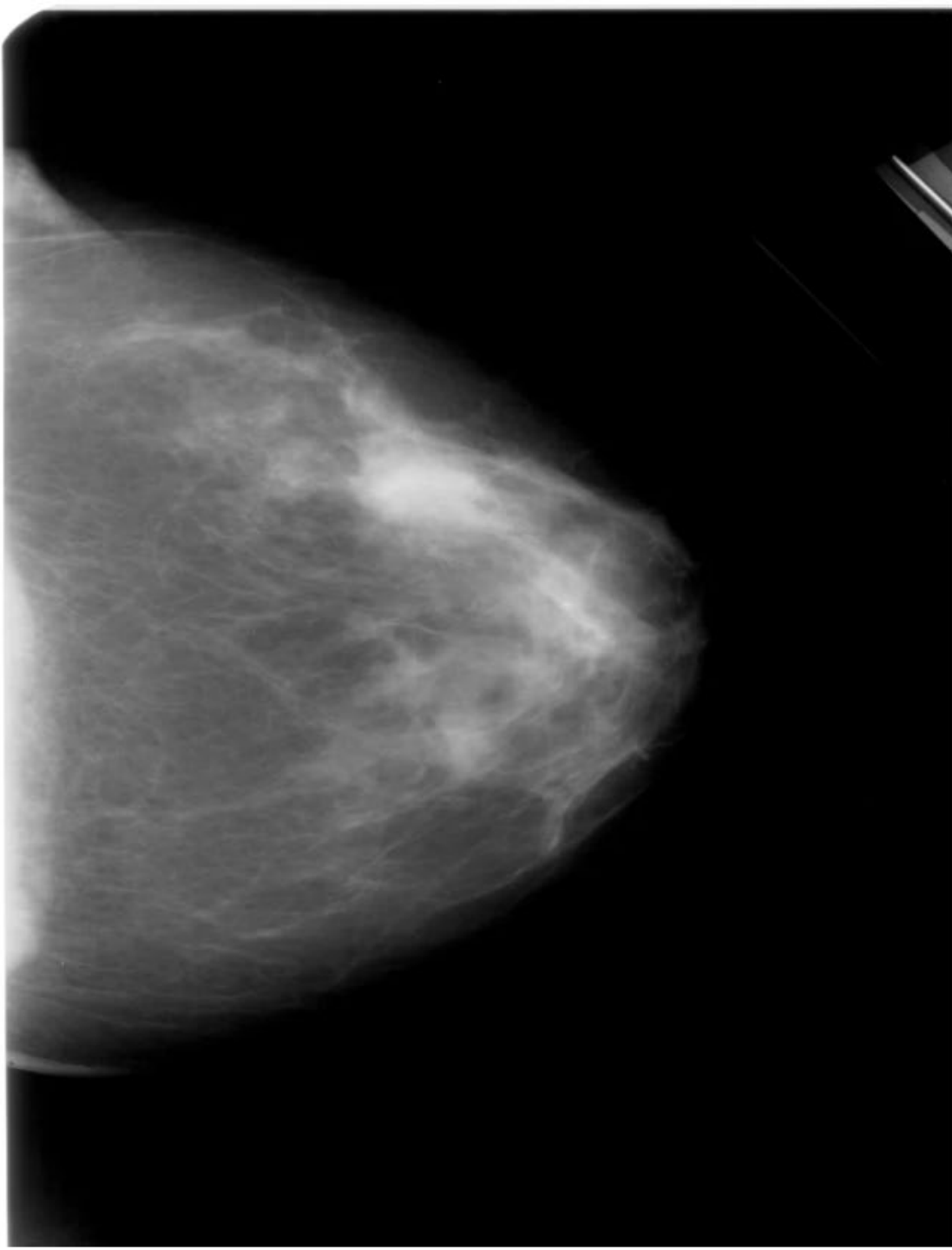
Droniada, 1 czerwca 2023



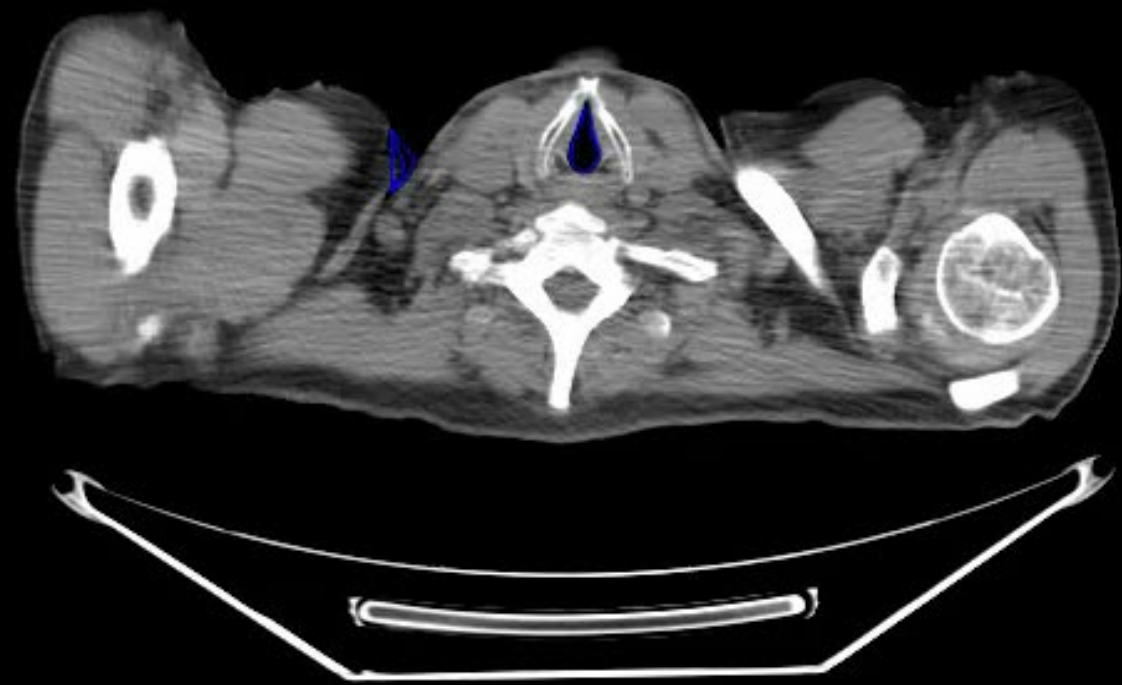
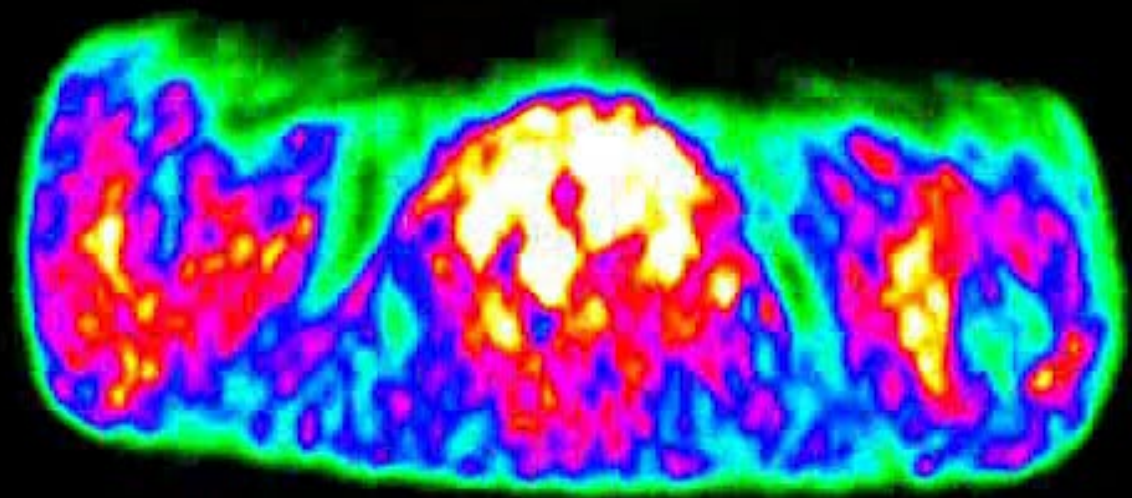


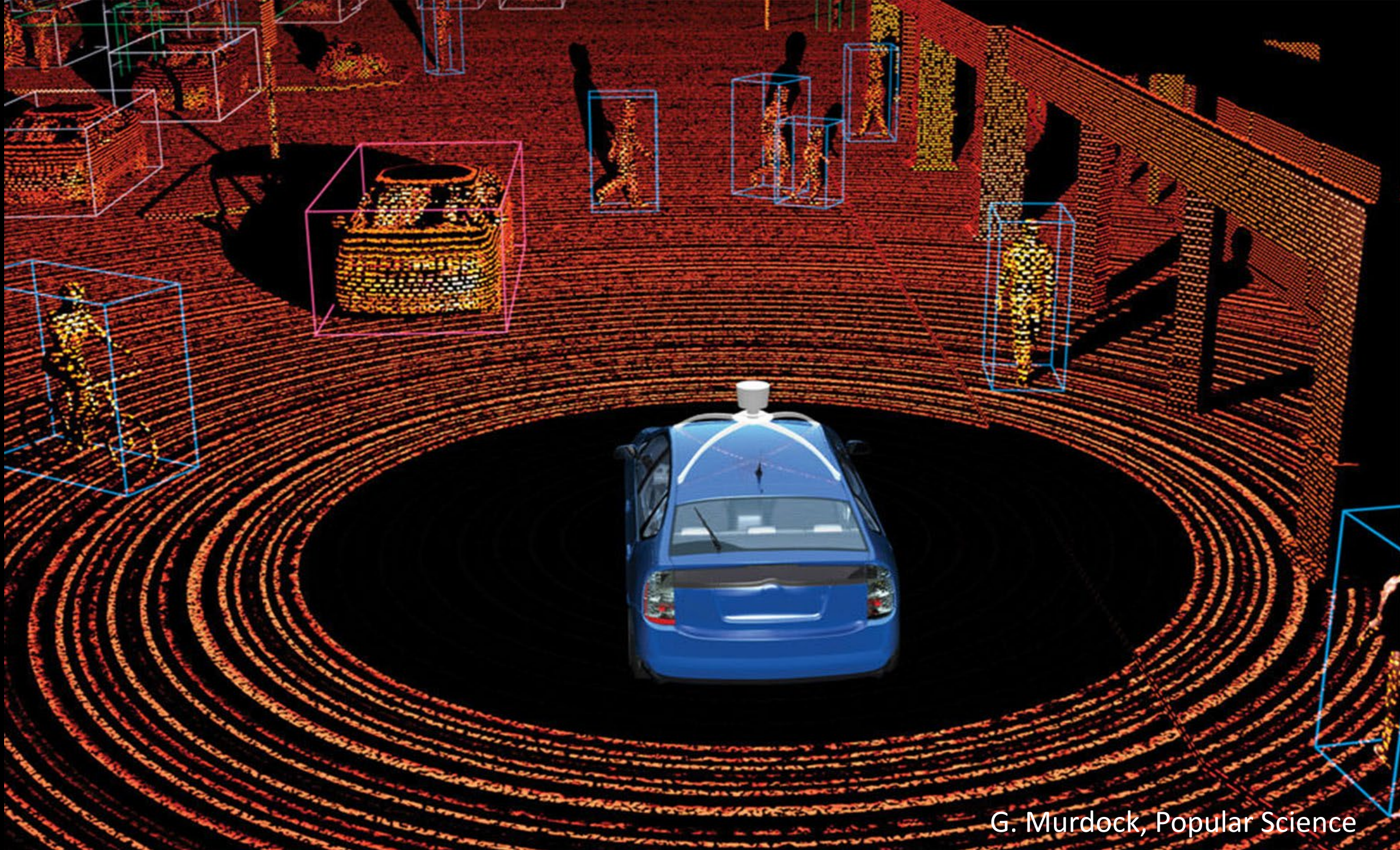






L. Shen et al., Deep Learning to Improve Breast Cancer Detection on Screening Mammography, Scientific Reports volume 9, Article number: 12495 (2019)







2016





2017 (-282 ha)

An aerial photograph of a forested area with a red overlay. The red overlay consists of several large, roughly rectangular blocks arranged in a grid-like pattern, interspersed with smaller, irregular red patches. The background is a dense, dark green forest. The red areas appear to be a specific land use or management zone. The text '2018 (-832 ha)' is located in the bottom left corner.

2018 (-832 ha)



0 10 km

07 August 2016



Curtiss Davis/Oregon State

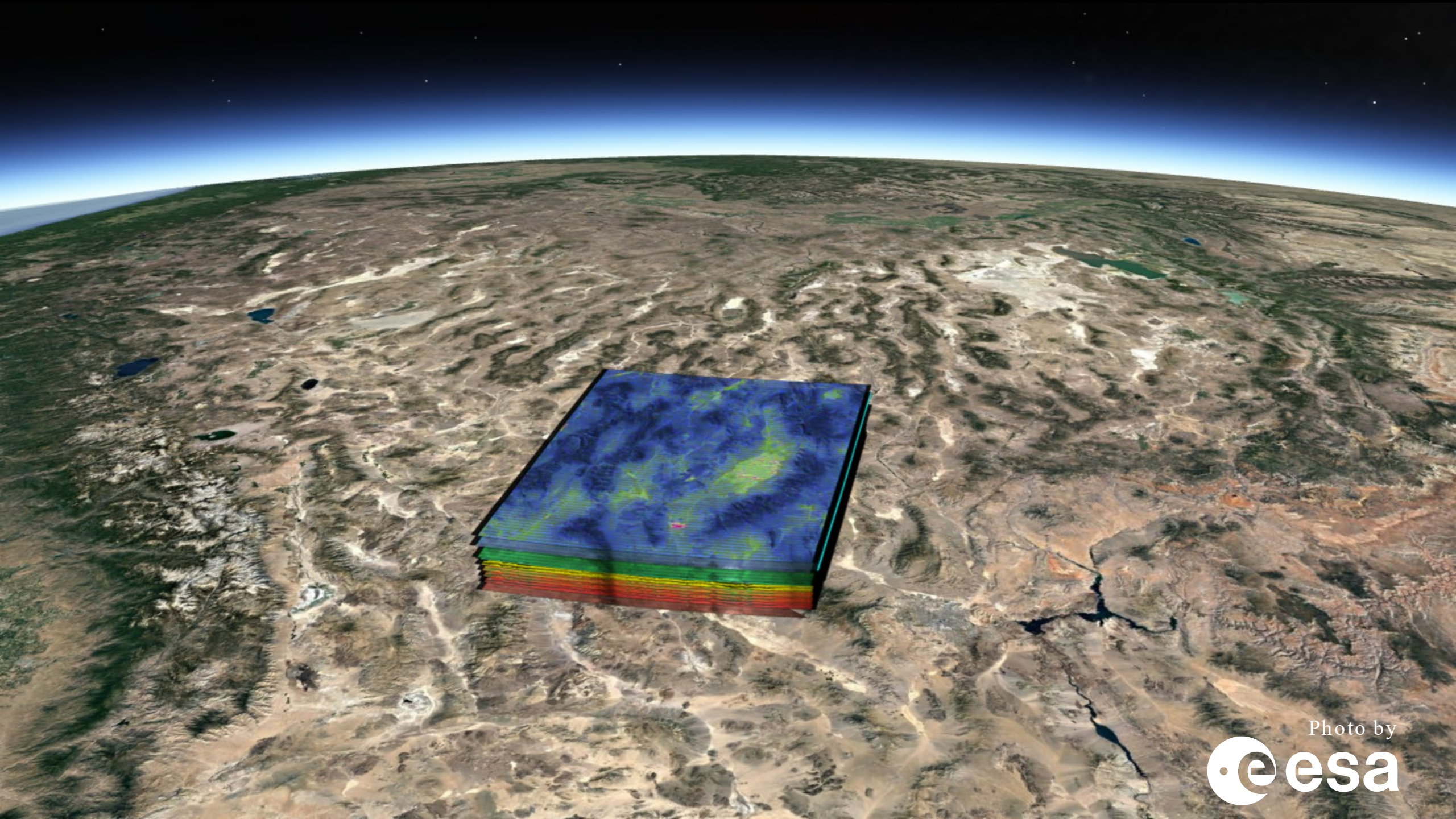


Photo by



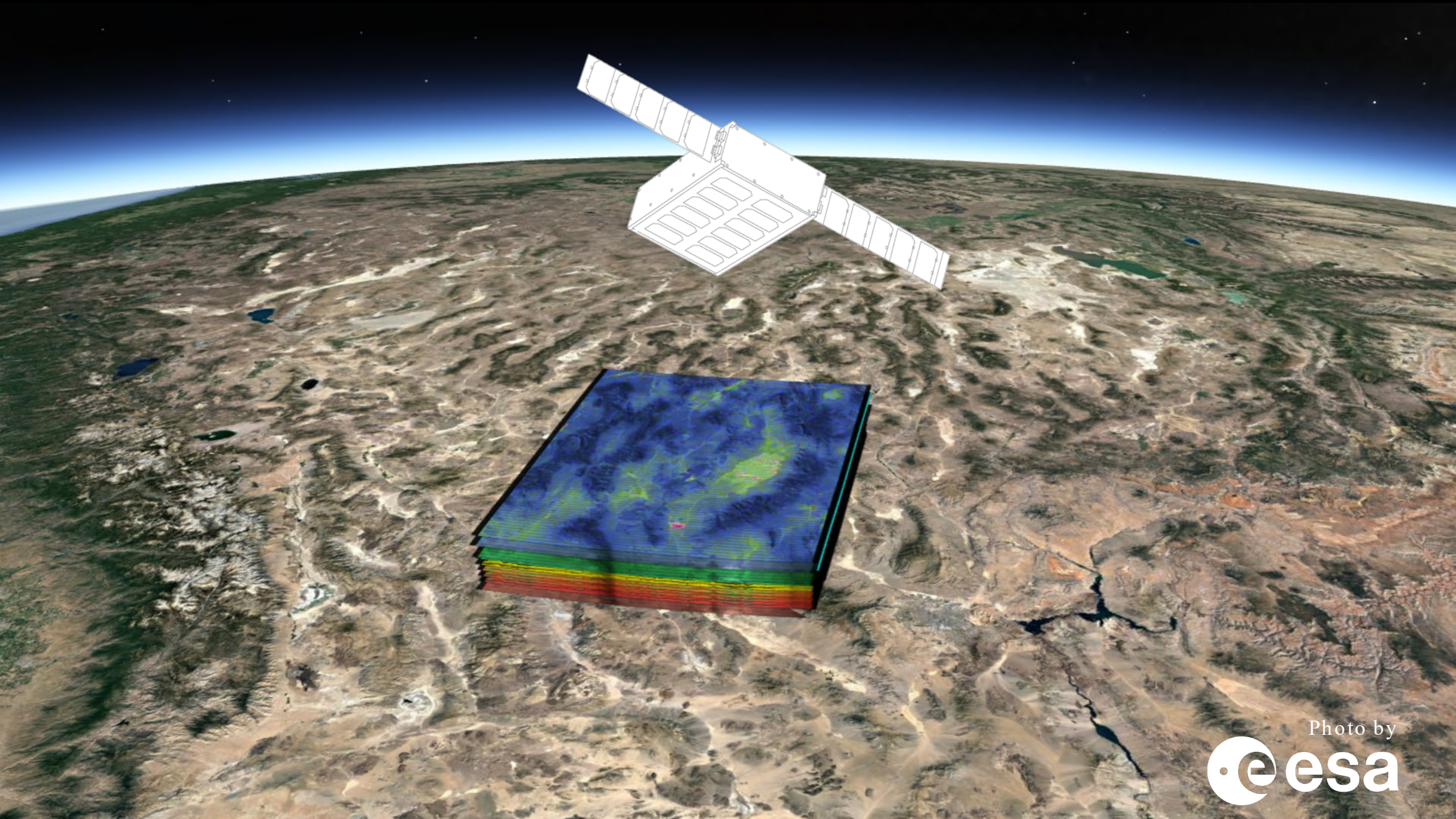


Photo by



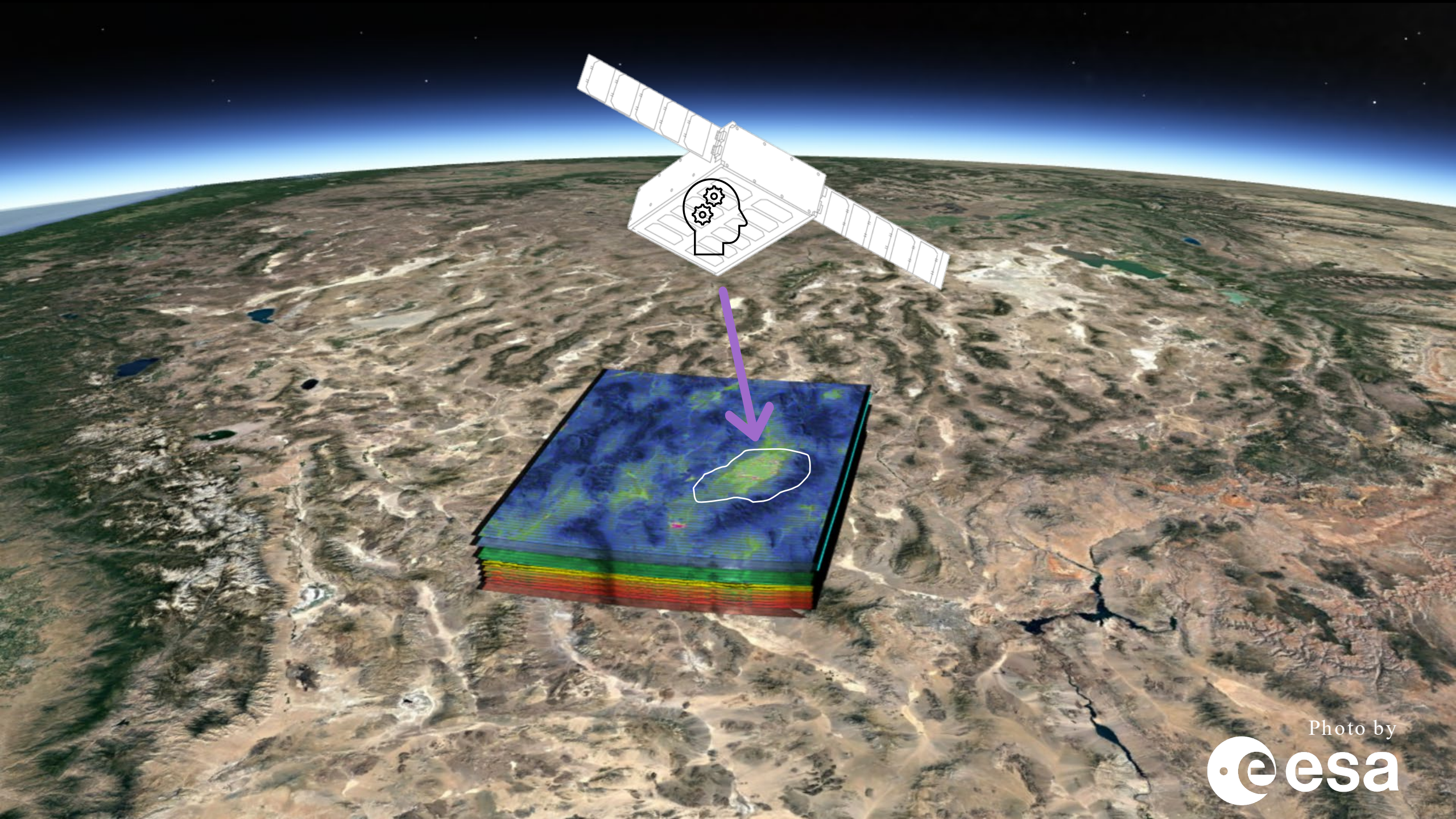


Photo by





INTUITION-1

HYPERSPECTRAL EO SATELLITE



OPEN
3dB

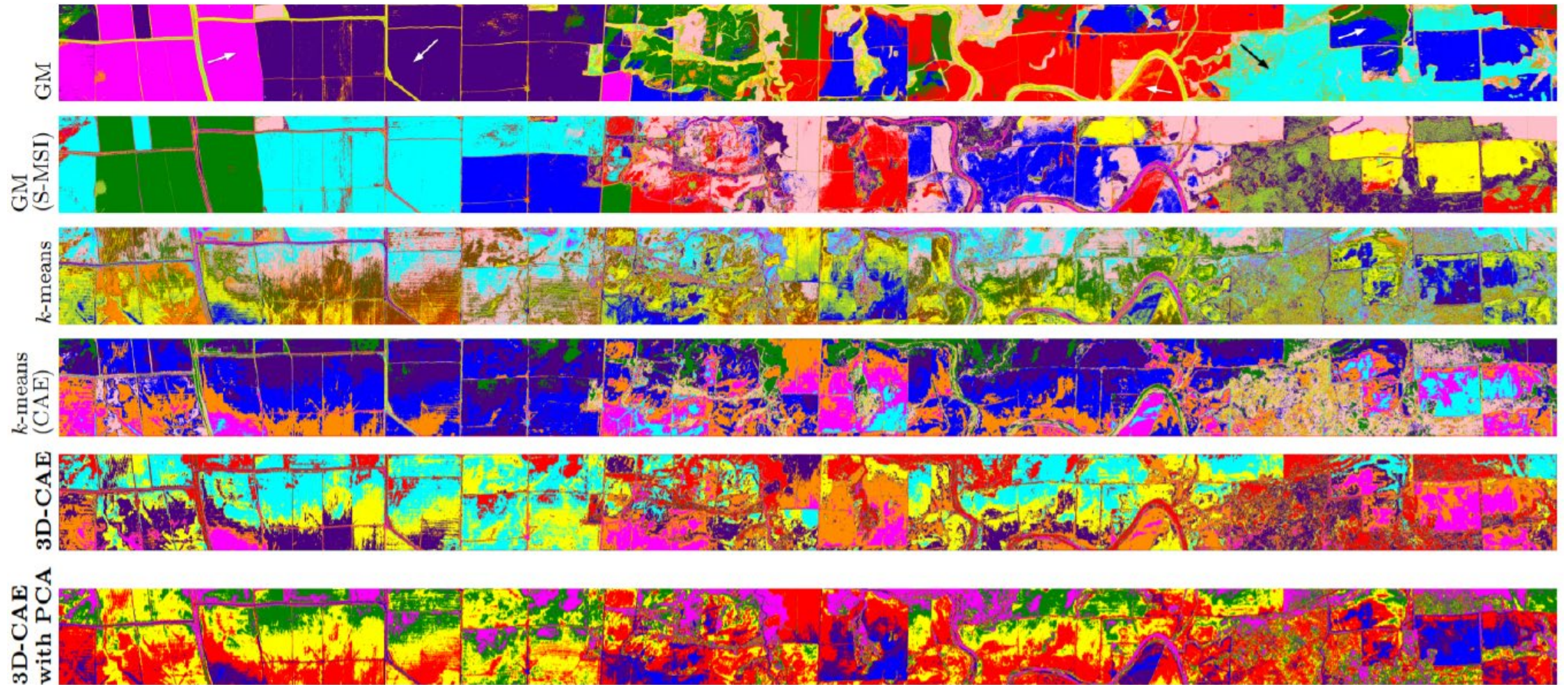
-25 20 10 7 5 3 1 0 +1





Aa Bb Cc Dd Ee Ff
Gg Hh Ii Jj Kk Ll
Mm Nn Oo Pp Qq Rr
Ss Tt Uu Vv Ww Xx
Yy Zz



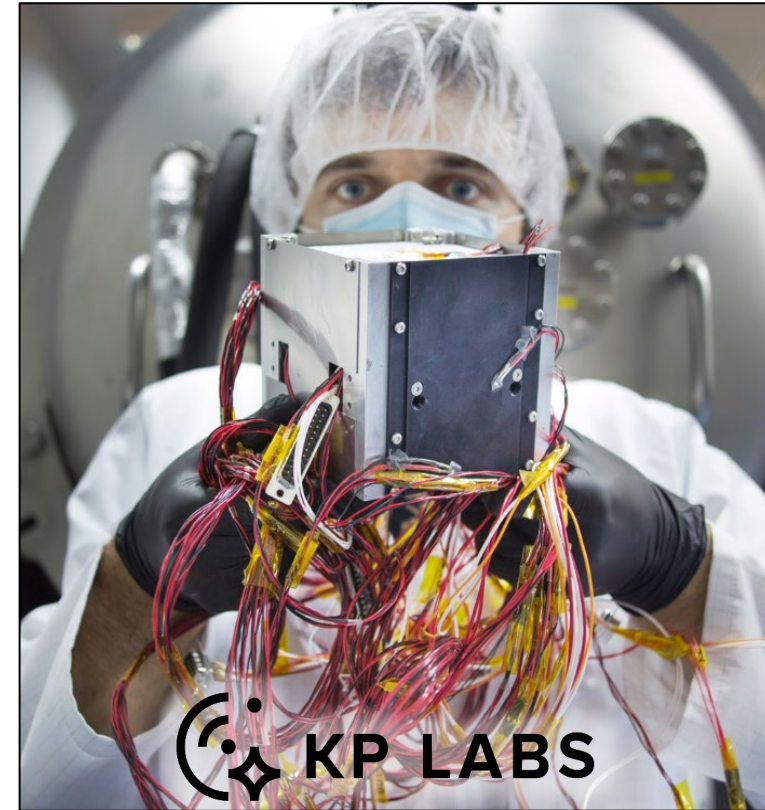
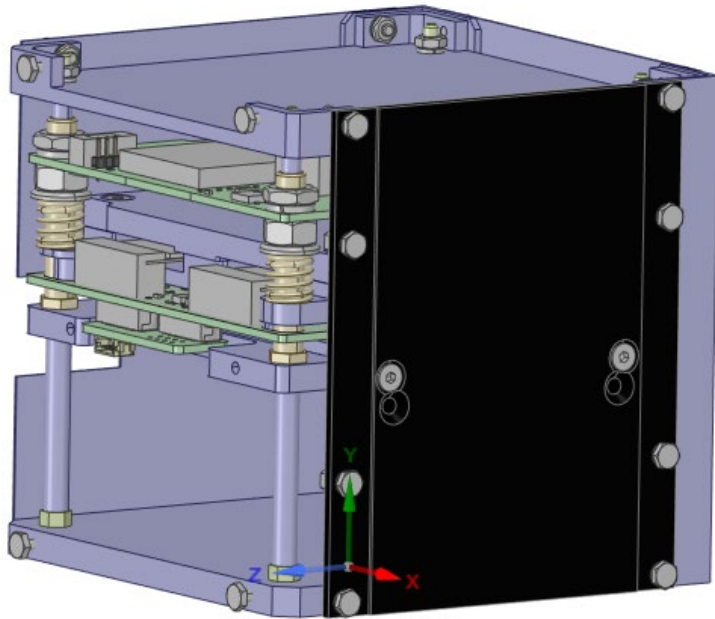


J. Nalepa, M. Myller, Y. Imai, K. Honda, T. Takeda, M. Antoniak: Unsupervised Segmentation of Hyperspectral Images Using 3-D Convolutional Autoencoders, IEEE Geoscience and Remote Sensing Letters, 17(11): 1948-1952, 2020.



SZTUCZNA INTELIGENCJA NA ORBICIE

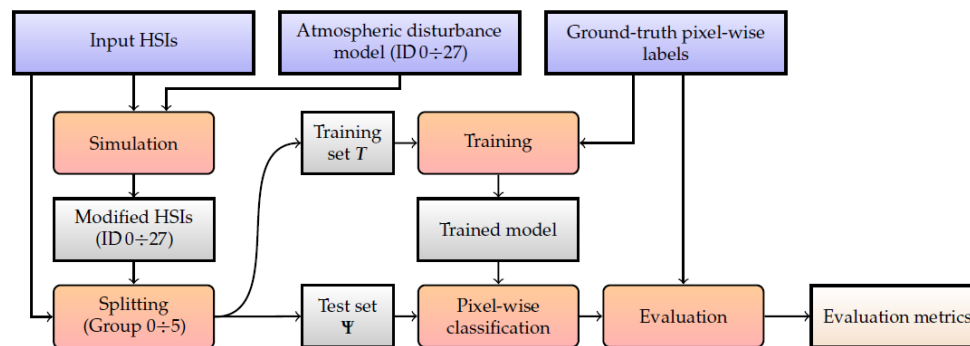
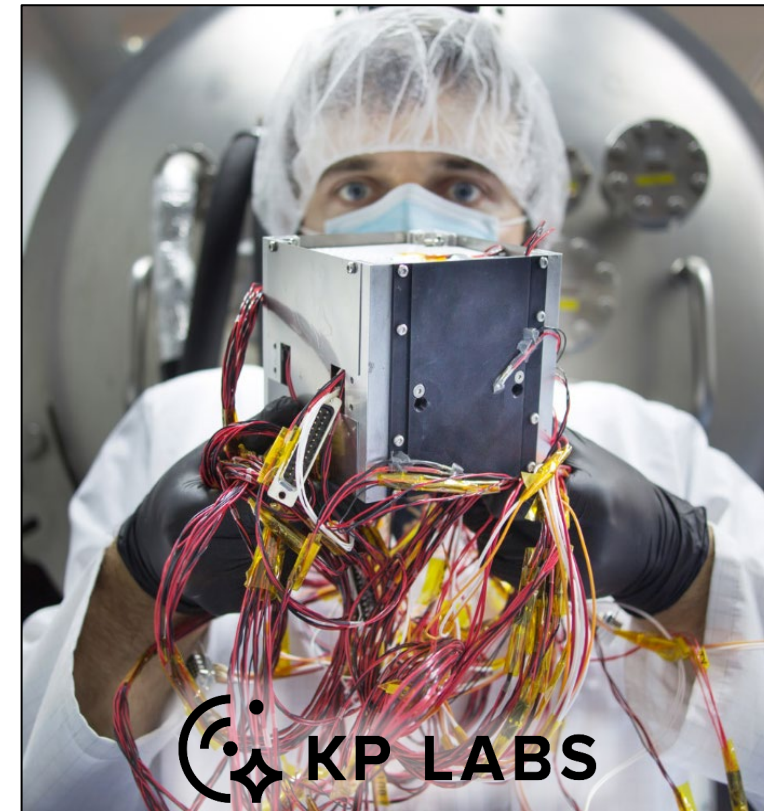
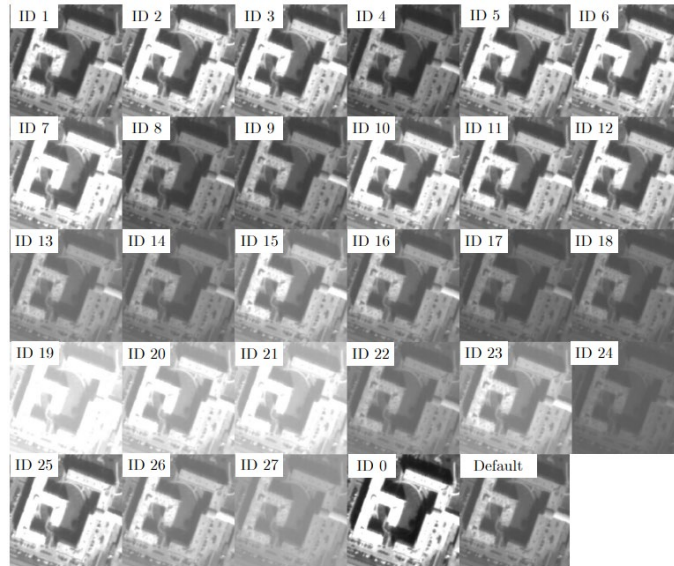
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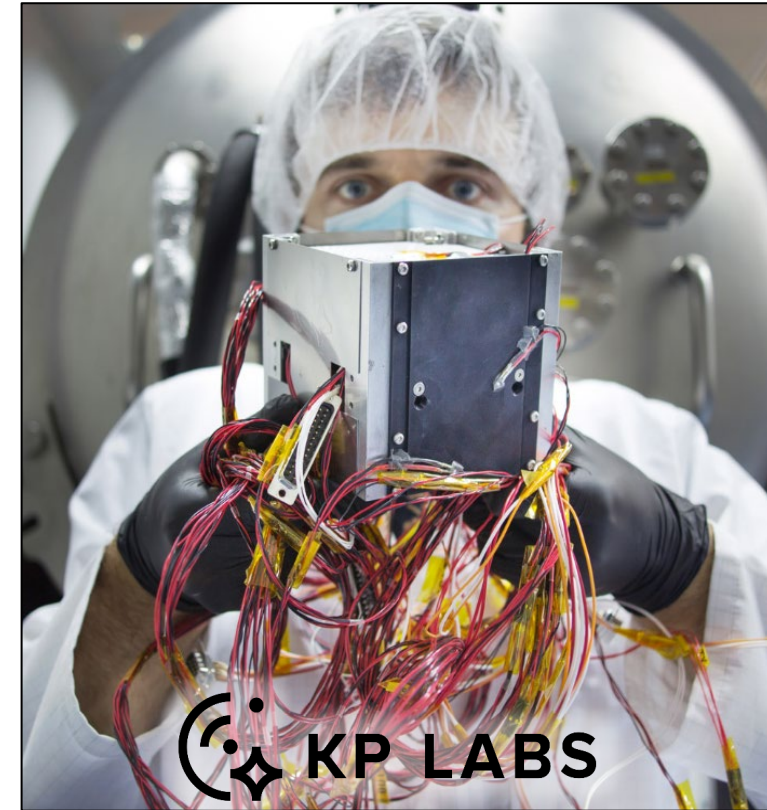
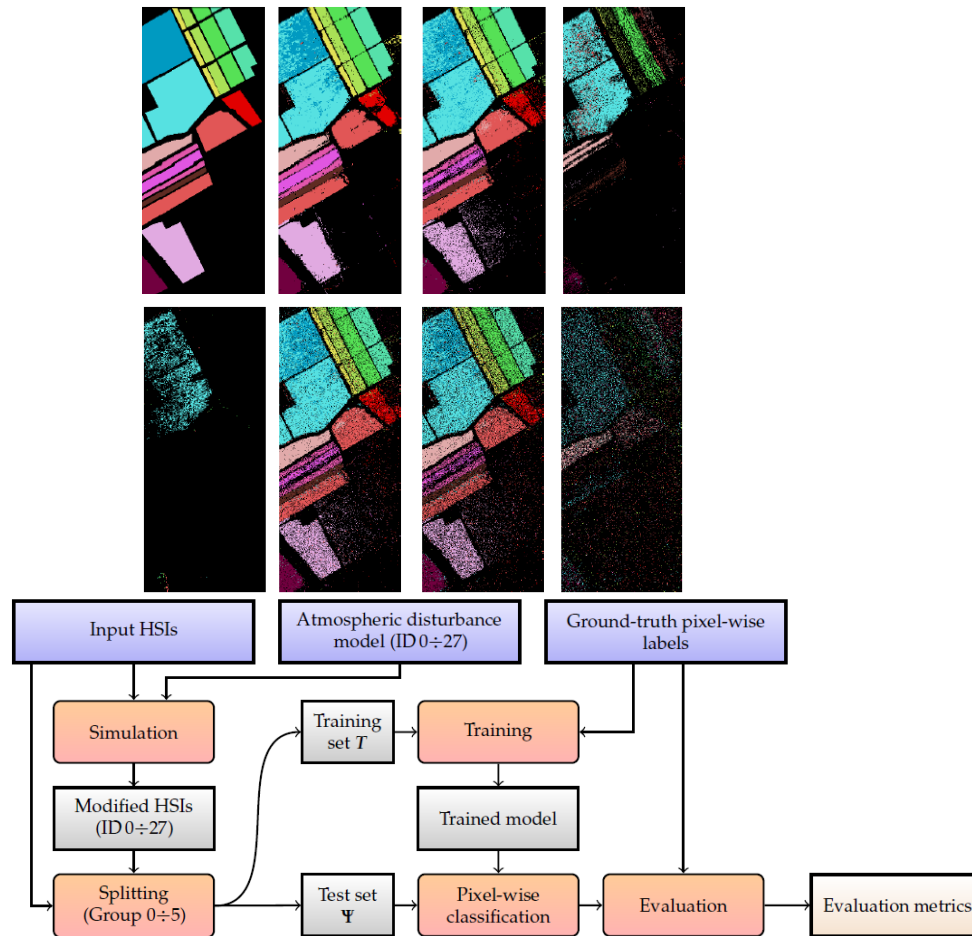
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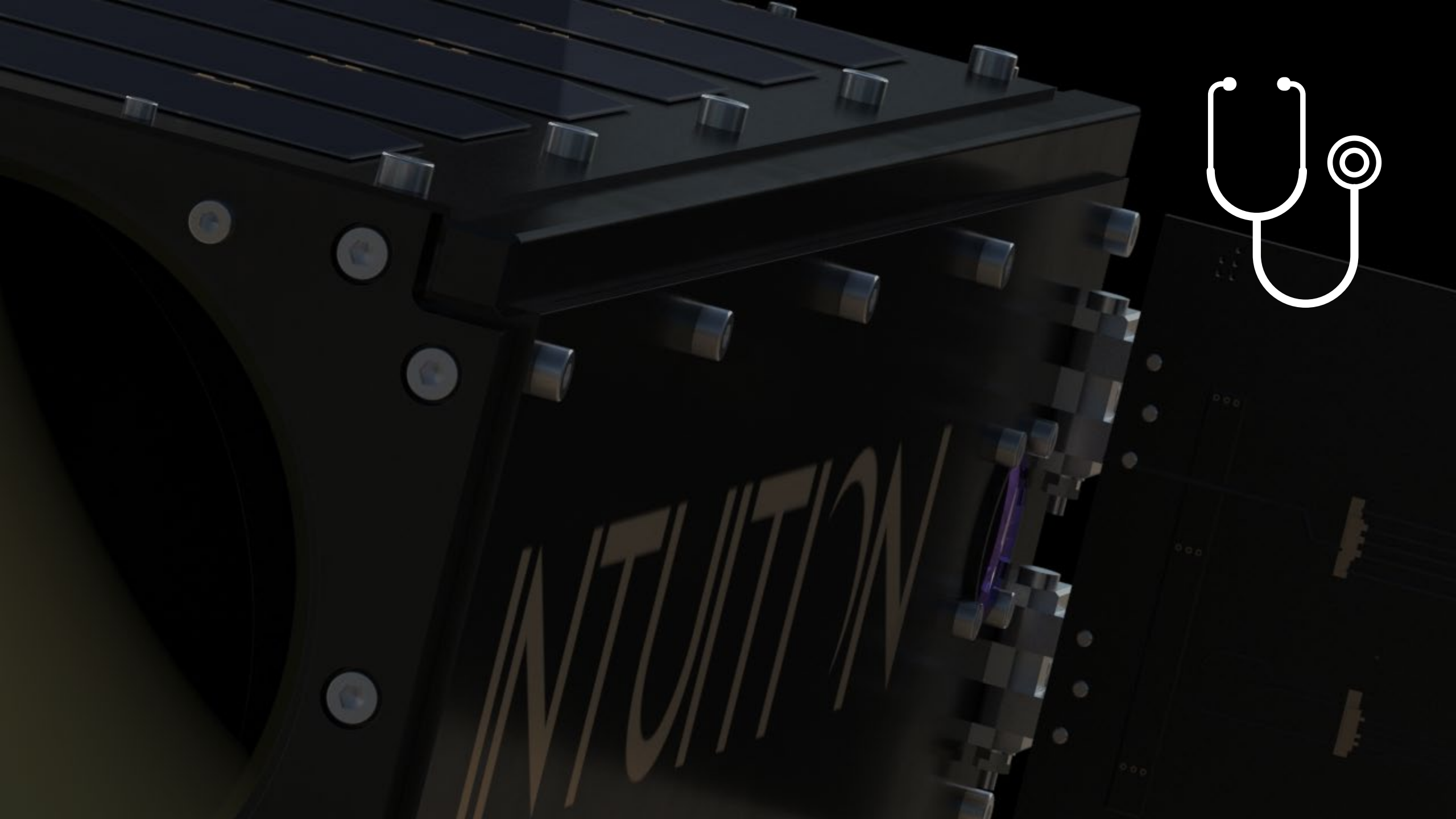




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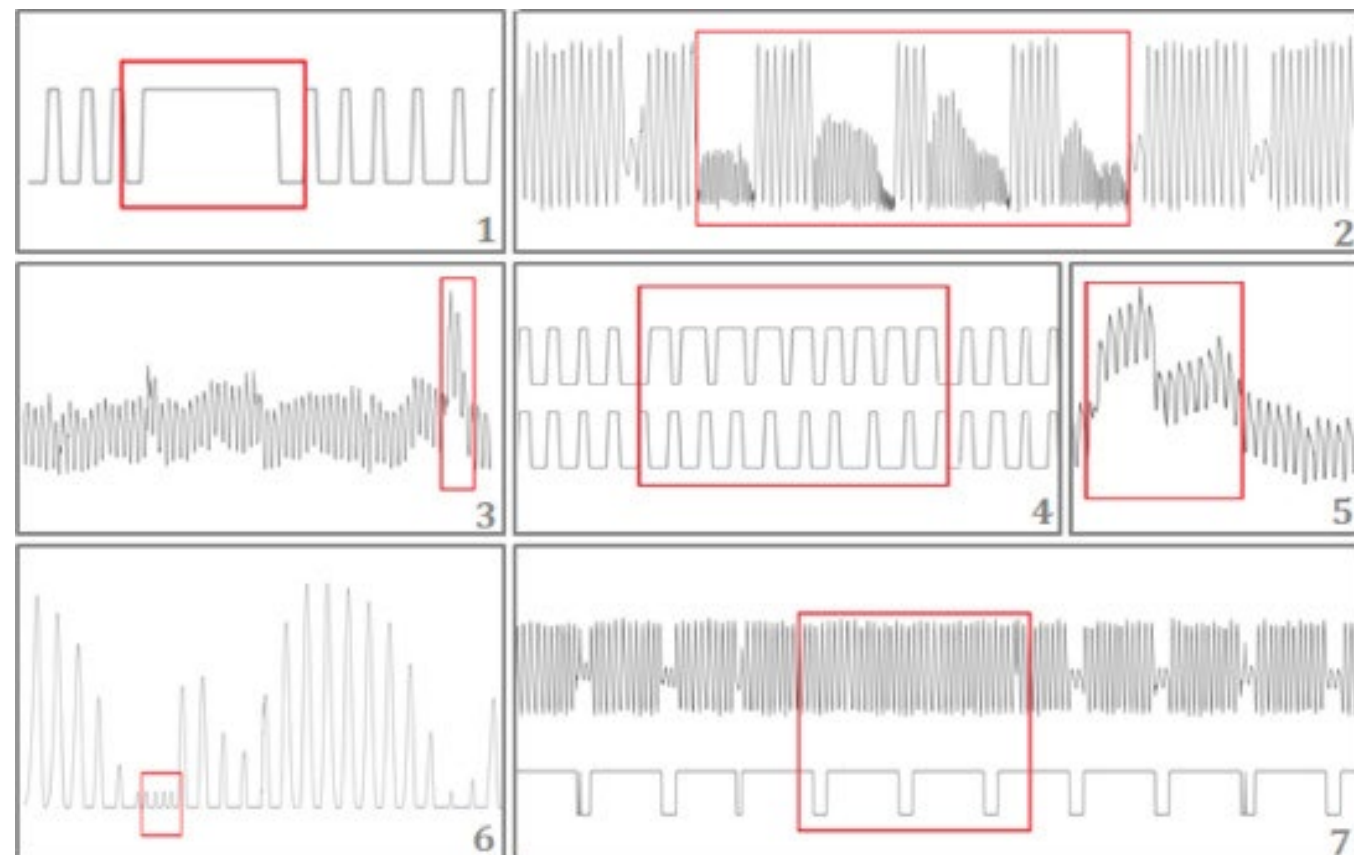
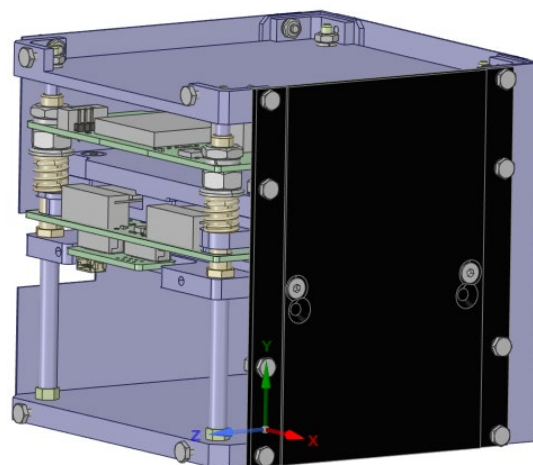
W stronę cyfrowego bliźniaka







Detekcja anomalii w danych telemetrycznych

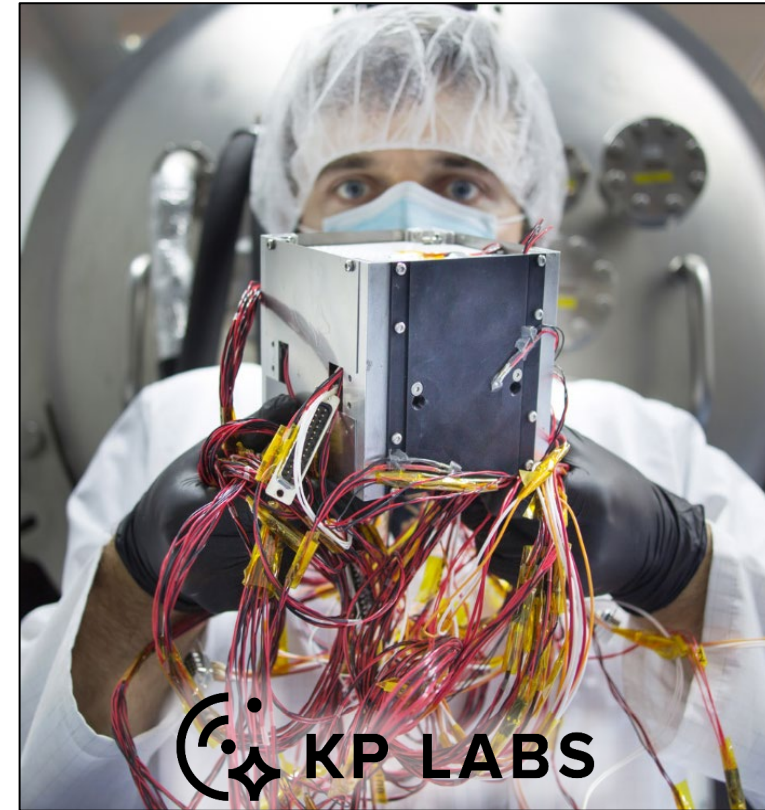
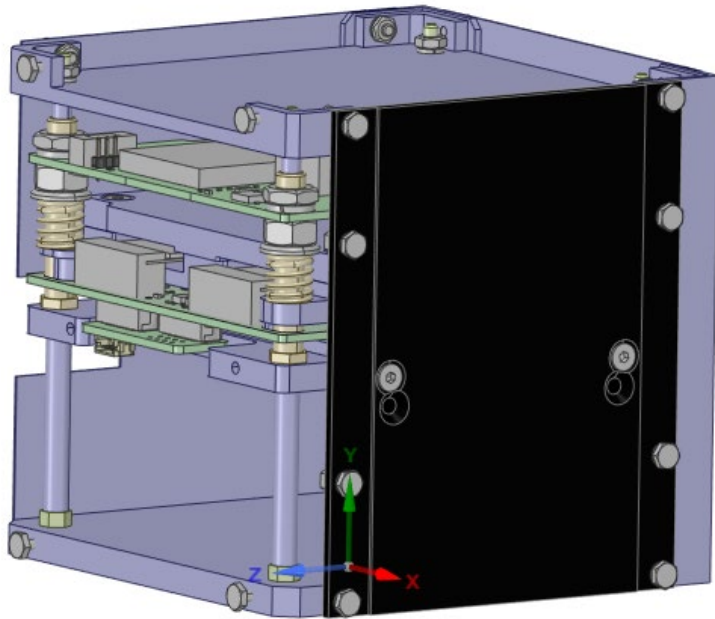


Barbara Pilastre, Loïc Boussof, Stéphane D'Escrivan, Jean-Yves Tournet; Anomaly detection in mixed telemetry data using a sparse representation and dictionary learning; Signal Processing, Volume 168, 2020



SZTUCZNA INTELIGENCJA NA ORBICIE

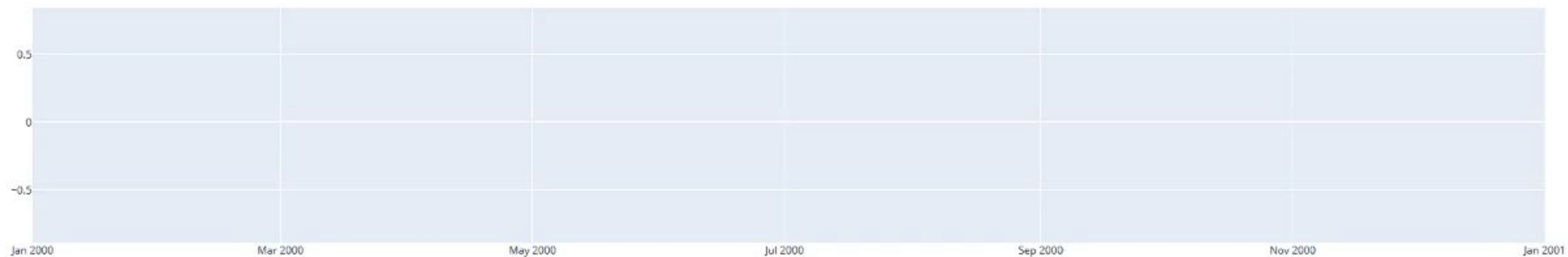
W stronę cyfrowego bliźniaka



Antelope Toolbox

Detection

Simulation



Setup

Simulation
Enabled:



Clear graph

Refresh
speed [s]:



0.2s

Example



P-3



Anomaly

Create anomaly

Anomaly
time [s]:



4.1s

Anomaly type:

random



Min value

-1



Max value

1



Detector

RNN Based



Detector model:

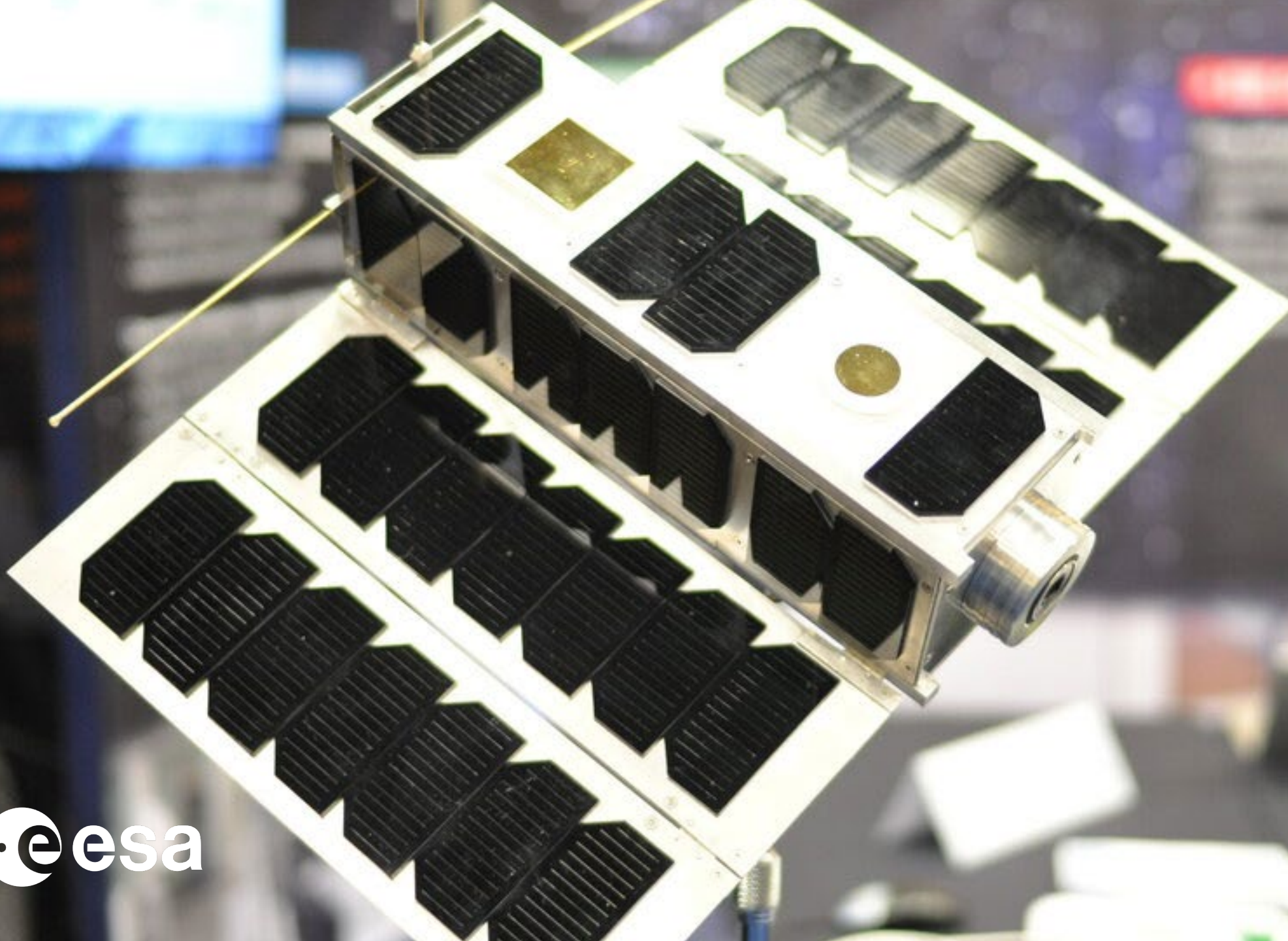
Example

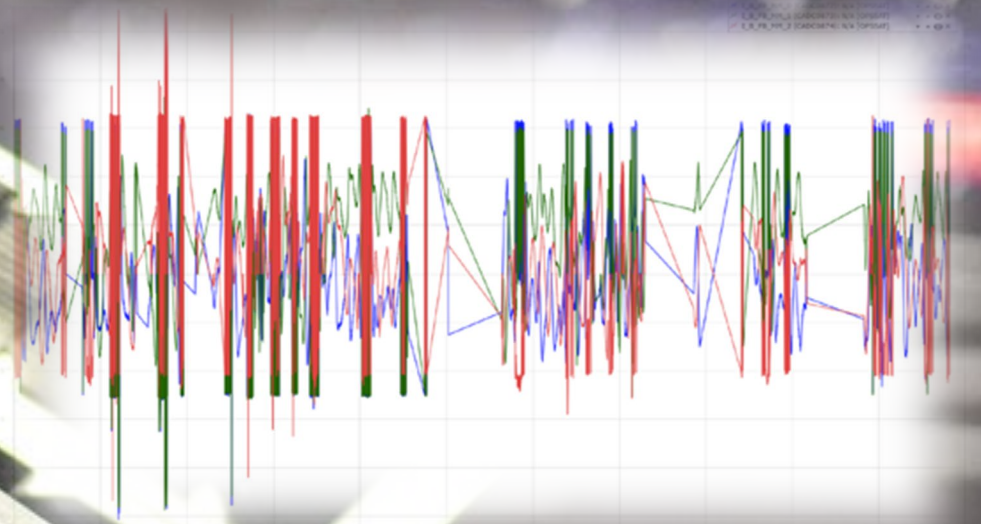
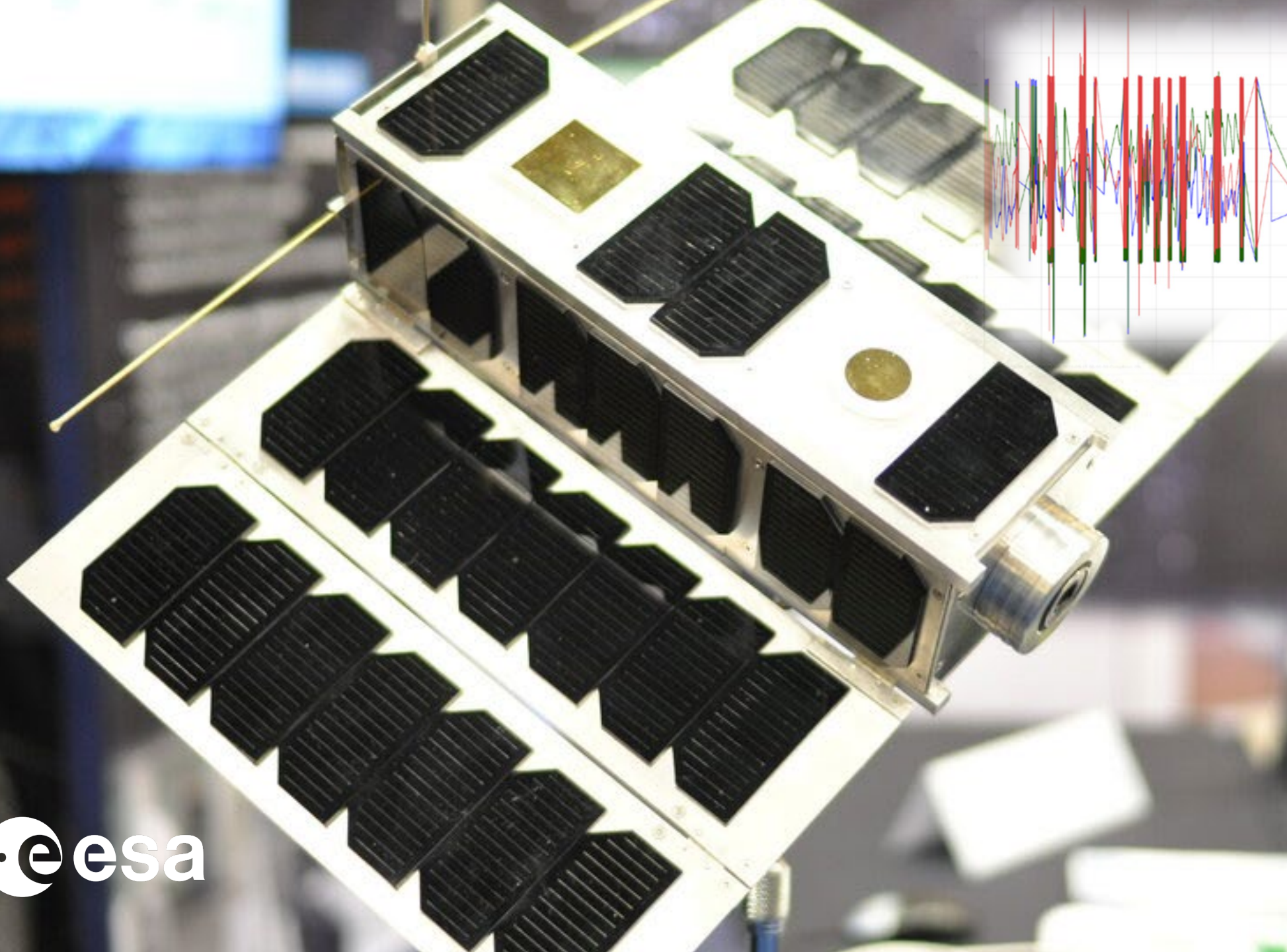


P-3



Selected detector model: P-3 (25 input(s))





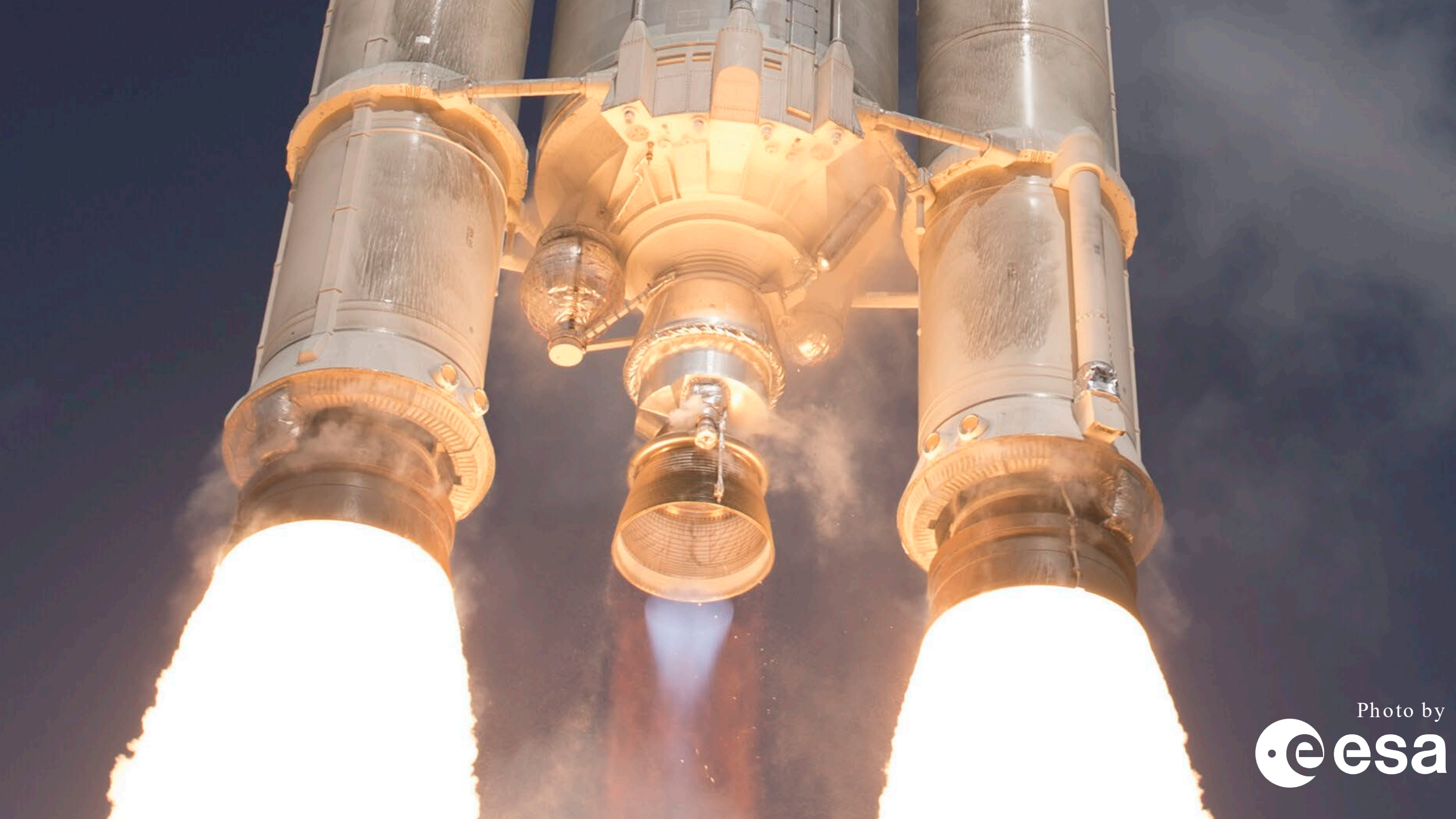
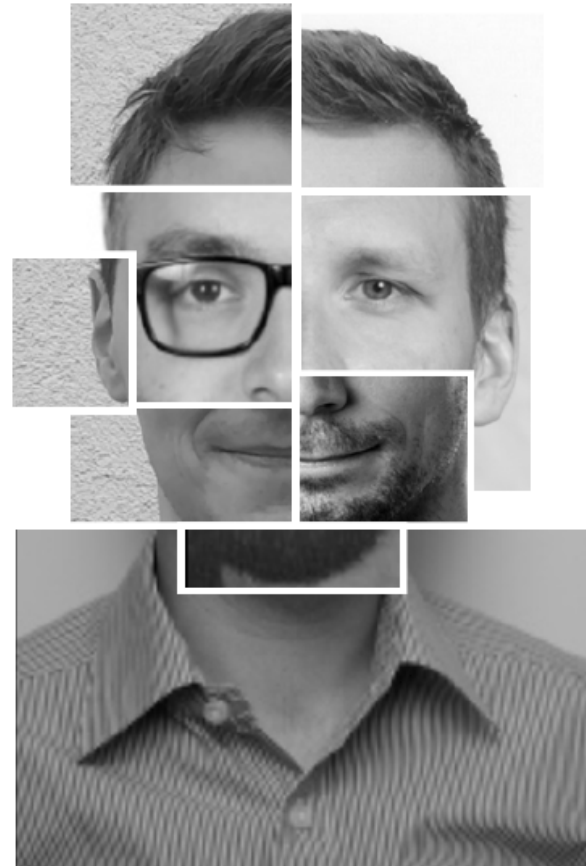


Photo by





Ja k g ł ę b o k i e u c z e n i e
z m i e n i a o r b i t ę :
A n a l i z a d a n y c h n a
p o k ł a d z i e s a t e l i t ó w

Jakub Nalepa
Ja kub .Na le pa @p o l s l .p l