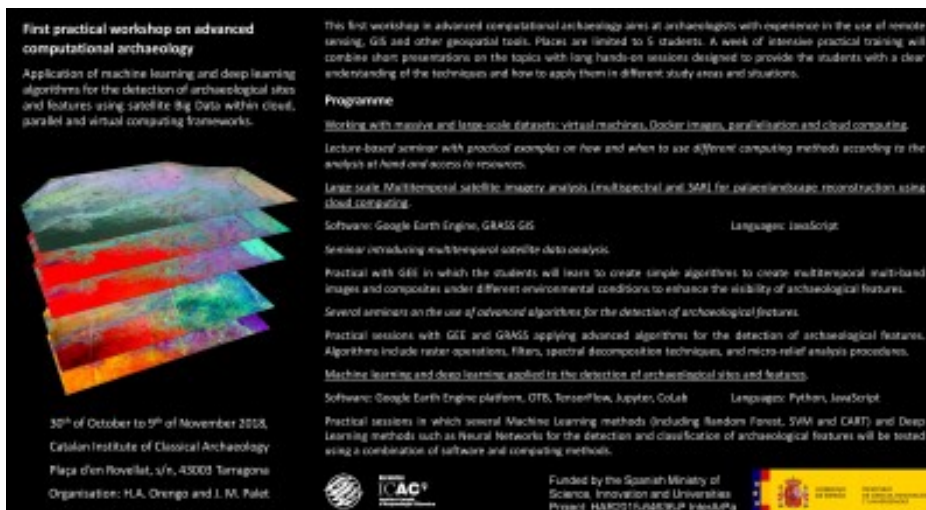


First Practical Workshop on Advanced Computational Archaeology

Hèctor A. Orengo and Josep Maria Palet, members of the **Research Group on Landscape Archaeology** (ICAC) organize, from October 30 to November 9, a workshop on Advanced Computational Archaeology. This is one of the dissemination activities planned in the **InterArPa** project, funded by the Spanish Government **R+D program** (MINECO, HAR2015-64636-P).

The first edition of the Workshop on Advanced Computational Archaeology is aimed to archaeologists with experience in using remote sensing, GIS and other **geospatial tools**. An intensive practical training that combines brief **presentations** on specific topics with long **practical sessions** that will allow participants to deepen in the computing techniques and understand its application in different areas and study situations.



The poster features a central 3D visualization of a terrain with various colored layers representing different data layers or processing stages. The text is organized into columns and sections, providing details about the workshop's goals, program, and logistics.

First practical workshop on advanced computational archaeology

Application of machine learning and deep learning algorithms for the detection of archaeological sites and features using satellite Big Data within cloud, parallel and virtual computing frameworks.

This first workshop in advanced computational archaeology area is for archaeologists with experience in the use of remote sensing, GIS and other geospatial tools. Places are limited to 5 students. A week of intensive practical training will combine short presentations on the topics with long hands-on sessions designed to provide the students with a clear understanding of the techniques and how to apply them in different study areas and situations.

Programme

Working with massive and large-scale datasets: virtual machines, Docker images, parallelisation and cloud computing.

Lecture-based seminar with practical examples on how and when to use different computing methods according to the analysis of need and access to resources.

Large-scale Multitemporal satellite imagery analysis (multispectral and SAR) for paleoenvironmental reconstruction using cloud computing.

Software: Google Earth Engine, GRASS GIS Languages: JavaScript

Seminar introducing multi-temporal satellite data analysis.

Practical with GIS in which the students will learn to create simple algorithms to create multi-temporal multi-band images and composites under different environmental conditions to enhance the visibility of archaeological features.

Several seminars on the use of advanced algorithms for the detection of archaeological features.

Practical sessions with GEE and GRASS applying advanced algorithms for the detection of archaeological features. Algorithms include raster operations, filters, spectral decomposition techniques, and micro-relief analysis procedures.

Machine learning and deep learning applied to the detection of archaeological sites and features.

Software: Google Earth Engine platform, QGIS, TensorFlow, Jupyter, Colab Languages: Python, JavaScript

Practical sessions in which several Machine Learning methods (including Random Forest, SVM and CART) and Deep Learning methods such as Neural Networks for the detection and classification of archaeological features will be tested using a combination of software and computing methods.

30th of October to 9th of November 2018,
Catalan Institute of Classical Archaeology
Plaça d'en Rovellat, s/n, 43003 Tarragona
Organisation: H.A. Orengo and J.M. Palet

Funded by the Spanish Ministry of Science, Innovation and Universities
Project: HAR2015-64636-P InterArPa

Practical sessions will test several **Machine Learning** methods (including Random Forest, SVM and CART) and **Deep Learning** methods (such as Neural Networks for the detection and classification of archaeological features) using a combination of software and computing methods.

