

12-16 February 2024

As part of the memorandum of understanding between University of Tuscia, CREA and ICM-CSIC and with the financing of the D.I.Ver.So project will be held a:

## WINTER SCHOOL

# Machine learning applications to marine and terrestrial monitoring and Livestock Farming

### OBJECTIVE:

Advanced education in interdisciplinary applications of computer science to the growing and exciting field of *ecological monitoring* with a focus on the following topics:

- Machine learning with artificial neural networks (ANN)
- Image classification with convolutional neural networks (CNN)
- Semantic segmentation and UNET
- Object detection using YOLOv8
- Clustering Algorithms
- Edge computing



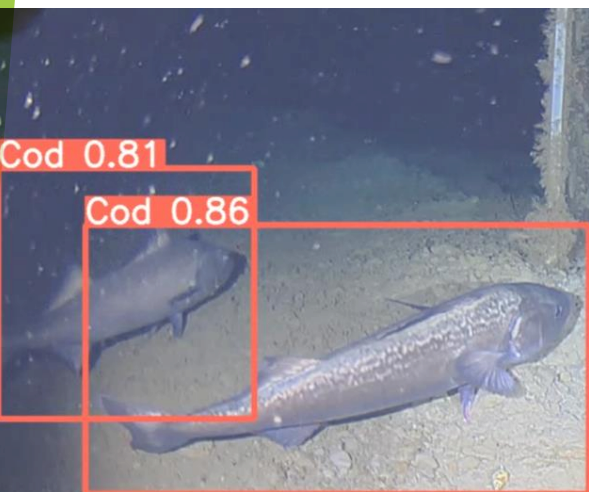
**D.I.Ver.So.**  
Digitali, Intelligenti, Verdi, Sostenibili

### ORGANIZERS:

Luciano Ortenzi (Uni Tuscia) Daniele D'Agostino (DIBRIS) Jacopo Aguzzi (CSIC) Corrado Costa (CREA) Riccardo Primi (Uni Tuscia) Francesca Antonucci (CREA) Giorgio Delzanno (DIBRIS)

### SCIENTIFIC COMMITTEE:

Danilo Monarca (Uni Tuscia) Massimo Cecchini (Uni Tuscia) Federico Pallottino (CREA) Simone Figorilli (CREA) Nixon Bahamon (CSIC) Damianos Chatzievangelou (CSIC)



### VENUE

Consiglio per la Ricerca in agricoltura e  
l'analisi dell'Economia Agraria (CREA)

Centro di ricerca in Ingegneria e  
Trasformazioni agroalimentari

Via della Pascolare 16, 00015

Monterotondo (RM)

Email: francesca.antonucci@crea.gov.it





**D.I.Ver.Sa.**  
Digitali, Intelligenti, Verdi, Sostenibili

## PROGRAM

- 12 February:**      **14:00 – 18:00 Welcome session and short talks by participants**  
Luciano Ortenzi (Assistant Prof. Uni Tuscia – DAFNE)  
Corrado Costa (Leading Researcher - CREA)
- 13 February:**      **9:30 – 11:30 Multivariate Statistics and Machine Learning**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)  
Simona Violino (Researcher - CREA)
- 11:30 – 13:00 Practical session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)
- 13:00 – 14:00 Lunch**
- 14:00 – 18:00 Hands-on Session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)
- 14 February:**      **9:30 – 11:30 Image classification**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)  
Jordi Grinyó (PostDoc – ICM-CSIC)
- 11:30 – 13:00 Practical session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)
- 13:00 – 14:00 Lunch**
- 14:00 – 18:00 Introduction to Edge-computing and  
Hands-on session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)  
Daniele D'Agostino (Associate Professor DIBRIS – Uni Genova)
- 15 February:**      **9:30 – 11:30 Object detection and semantic segmentation**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)  
Riccardo Primi (Assistant Prof. Uni Tuscia – DAFNE)
- 11:30 – 13:00 Practical session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)
- 13:00 – 14:00 Lunch**
- 14:00 – 18:00 Hands-on Session**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)
- 16 February:**      **9:30 – 10:30 Internet of things**  
Giorgio Delzanno (Full Professor DIBRIS – Uni Genova)
- 10:30 – 12:00 Conclusions and Perspectives**  
Luciano Ortenzi (Assistant Prof. – Uni Tuscia – DAFNE)

