

## DeepHealth Winter School 2022

### Objectives

Intense week in which the combination of lectures and lab exercises will bring participants closer to the use of deep learning and computer vision in tasks related to medical imaging and other medical data, and to high-performance computing to considerably reduce the running times of model-training processes.

The DeepHealth Winter School will include theoretical sessions (master classes) about Deep Learning, Computer Vision, Medical Imaging and High-Performance Computing, and lab sessions to show attendants how the software created in the DeepHealth project can be installed and used. Lab exercises will be guided by junior and senior researchers involved in the DeepHealth project.

? [More information about the DeepHealth Winter School 2022 here](#)

### Contents in more detail

#### Master classes

1. Doing Deep Learning with the **European Distributed Deep Learning Library** (EDDL), by Roberto Paredes (UPV)
  - Two sessions: Monday and Tuesday, see schedule.
2. Doing Computer Vision with the **European Computer Vision Library** (ECVL), by Constantino Grana (UNIMORE)
  - Two sessions: Monday and Tuesday, see schedule.
3. Medical Imaging
  1. Introduction to medical imaging: a constant learning experience by Marco Grangetto (UNITO)
  - 2.

From H&E to pixels: digital pathology applications for colon cancer diagnosis by Luca Bertero (UNITO)

3. Neural Network-derived perfusion maps in patients with acute ischemic stroke by Federico D'Agata (UNITO) and Enzo Tartaglione (UNITO)

4. Lung cancer diagnosis by Daniele Perlo (CDSS), Riccardo Renzulli (CDSS) and Marco Grosso (CDSS)

4. Medical Image manipulation

1. DICOM & NifTI formats by Costantino Grana (UNIMORE)

2. Deep Learning pipeline on histopathology images: detection of prostatic tumor, by Francesco Versaci (CRS4) and Giovanni Busonera (CRS4)

5. High-Performance Computing, by Eduardo Quiñones (BSC) and Iacopo Colonnelli (UNITO)

6. Heterogeneous Architectures in EDDL

1. GPU programming in the EDDL, by Roberto Paredes (UPV)

2. Reconfigurable Architectures Support in EDDL, by

- José Flich (UPV) for FPGA,
- Enzo Tartaglione (UNITO) for pruning, and
- Vicent Templier (CEA) for quantization methodologies

7. Presentation of the other three ICT-11 projects, Friday morning

- ICT-11 (a) , by (Project Coordinator)
- ICT-11 (b) , by (Project Coordinator)
- ICT-11 (c) , by (Project Coordinator)

## Lab sessions

1. ECVL & EDDL environment for potential developer
2. Installation and configuration of ECVL & EDDL
3. Lab exercises on non-distributed mode using DeepHealth use cases
4. Lab exercises on distributed mode using DeepHealth use cases and running on a HPC environment

## Speakers

[Click in this link to find more about who is involved in this edition of the DeepHealth Winter School](#)

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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