



Corso di Formazione Nazionale INFN: “ Introduzioni alle Reti Neurali e Applicazioni sui Dispositivi Elettronici ”

15 - 17 Novembre 2022



Goal of this module

Introducing to Machine Learning world

- ML is everywhere, from research to ordinary life
- Every morning “theory” presentations on several topics

Focus on most used tools in ML

- Every afternoon “Hands-on” on a specific argument
- Tutorials are “self-explained”: sections for becoming familiar with arguments, sections where you have to solve exercises
- Tutors will be online for questions and interactions

The team

- Silvia Auricchio, Ph.D
- Antimo Cagnotta, Ph.D
- Francesco Carnevali, Ph.D
- Francesco Cirotto, Researcher
- Roberto Schiattarella, Ph.D
- Autilia Vitiello, Researcher





Module 2 - Schedule

Day 1 - Introduction to ML

- A gentle introduction to ML, regression/classification, dataset handling
- Tutorial

Day 2 - Deep Neural Network

- Overview on Neural Network techniques
- DNN Tutorial

Day 3 - Convolutional Neural Network

- Principle of Convolutional Neural Network
- CNN Tutorial



Info on tutorials

We will use Google Colab

- Colab allows you to execute Python code interactively on your web browser
- No configuration needed
 - “Free” GPU access
- Notebooks will be shared with you
- More details this afternoon in the first tutorial



You need a Google account for doing tutorials!



Materials

- Sessions will be recorded on Zoom
- Slides will be shared on Indico Page
- Tutorial notebooks are on a shared Google Drive directory
 - You should receive an invitation via mail

Accessing notebooks

- You should have access to each tutorial links
- To allow modification please open in Playground Mode the file
- This should create an editable copy of the file, that you can manage and save on your personal Google Drive
- Then you can **save** this notebook, to not loose all your changes
 - Don't forget to save it!
- You should find your saved file in “Colab Notebooks” directory in your Drive

