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

6 - 8 Aprile 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

# Module 2 - Schedule

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|---|---|
| **Day 1 - Introduction to ML** | • A gentle introduction to ML, regression/classification, dataset handling<br>• Tutorial |
| **Day 2 - Deep Neural Network** | • Overview on Neural Network techniques<br>• DNN Tutorial |
| **Day 3 - Convolutional Neural Network** | • Principle of Convolutional Neural Network<br>• 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