

# Introduction to Deep Learning

25th–28th May 2026, Casalecchio di Reno, CINECA

## Teachers:

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## Agenda

### Monday, May 25 – Introduction and Fundamentals

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|---------------|---|
| 09:30 – 11:00 | Introduction to the CINECA environment and Git essentials |
| 11:00 – 13:00 | Machine Learning fundamentals                             |
| 13:00 – 14:00 | Lunch break   |
| 14:00 – 16:00 | Deep Learning fundamentals                                |
| 16:00 – 18:00 | Introduction to PyTorch                                   |

### Tuesday, May 26 – Neural Networks

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| 09:30 – 11:00 | Optimization and training loops in PyTorch (Linear Regression) |
| 11:00 – 13:00 | Introduction to Multi-Layer Perceptrons                        |
| 13:00 – 14:00 | Lunch break  |
| 14:00 – 16:00 | Introduction to Convolutional Neural Networks                  |
| 16:00 – 18:00 | Hands-on: Multi-Layer Perceptrons                              |

### Wednesday, May 27 – Hands-on and Large Language Models

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| 09:30 – 11:00 | Hands-on: Overfitting and Bias–variance tradeoff |
| 11:00 – 13:00 | Natural Language Processing and the Transformer  |
| 13:00 – 14:00 | Lunch break                                      |
| 14:00 – 16:00 | Large Language Models                            |
| 16:00 – 18:00 | Hands-on: Convolutional Neural Networks          |

### Thursday, May 28 – Fine-Tuning and Distributed Training

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| 09:30 – 11:00 | Introduction to Fine-tuning and Transfer Learning |
| 11:00 – 13:00 | Hands-on: Fine-tuning and Transfer Learning       |
| 13:00 – 14:00 | Lunch break                                       |
| 14:00 – 16:00 | Introduction to Distributed Deep Learning         |
| 16:00 – 18:00 | Hands-on: Distributed Data Parallel in PyTorch    |