



**IMPRS on Cognitive NeuroImaging
Module 4: Scientific Courses**

Fundamentals of Deep Learning (NVIDIA DLI certification)

04 March 2026

Date	Time	Topic	Lecturer
04 March	09:00 – 09:20	Introduction	Piero Coronica
	09:20 – 10:20	An Introduction to Deep Learning	Nastassya Horlava
	10:20 – 11:30	How a Neural Network Trains	Piero Coronica
	11:30 – 12:15	Convolutional Neural Networks	Nastassya Horlava
	13:15 – 14:00	Data Augmentation and Deployment	Piero Coronica
	14:00 – 14:45	Pre-Trained Models	Nastassya Horlava
	14:45 – 15:30	Advanced Architectures	Piero Coronica
	15:30 – 17:00	Assesment	

Course Description

This NVIDIA Deep Learning Institute (DLI) course provides a comprehensive, hands-on introduction to the fundamentals of deep learning. Through practical exercises, you will train neural networks from the ground up for both computer vision and natural language processing applications. You'll gain experience with essential tools and techniques to enhance model performance, and discover how to efficiently apply cutting-edge, pre-trained models to accelerate your own projects. By successfully completing the final assessment, you will earn an NVIDIA DLI certificate, demonstrating your proficiency in the foundational concepts and practical skills of deep learning.

Learning Objectives:

- Learn the fundamental techniques and tools required to train a deep learning model
- Gain experience with common deep learning data types and model architectures
- Enhance datasets through data augmentation to improve model accuracy
- Leverage transfer learning between models to achieve efficient results with less data and computation
- Build confidence to take on your own project with a modern deep learning framework

Topics Covered:

- PyTorch
- Convolutional Neural Networks (CNNs)
- Data Augmentation
- Transfer Learning
- Natural Language Processing

Prerequisites: An understanding of fundamental programming concepts in Python 3, such as functions, loops, dictionaries, and arrays; familiarity with Pandas data structures; and an understanding of how to compute a regression line.

Venue

Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig

Organiser

International Max Planck Research School on Cognitive NeuroImaging (IMPRS CoNI)

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Credit Points

Participants have the possibility to receive 0.25 ECTS CPs. Conditions: 80% attendance and successful completion of a coding assessment. The assessment has to be passed until 4 March, 17:00 CEST.

