DRIEI
PhD Program in Electronic and Computer Engineering
University of Cagliari, Italy

Course: An introduction to the PyTorch deep learning framework

Instructor: Daniele Angioni

SSD: ING-INF/05 INFORMATION PROCESSING SYSTEMS

Credits / hours: 2.5 credits / 20 hours

Language: English

Scheduling: 1-5 July 2024

Final Exam: Written

Website:
https://github.com/DanieleAngioni97/Introductory-Seminar-PyTorch/blob/main/README.md

Goal of the Course

This seminar will offer a practical overview of the most used deep learning techniques in the context of computer vision and natural language processing applications. This will be done through the lens of PyTorch, one of the most used deep learning frameworks in both industry and academics. PyTorch allows the implementation and training of deep neural networks through a practical and simple interface without losing touch with the mathematical foundation behind these technologies.

Prerequisites

- Adequate knowledge of Python programming language
- Basic theoretical knowledge of linear algebra and calculus
- Basic theoretical knowledge of machine learning

Intersection with other courses at the University of Cagliari

The course intersects with the Artificial Intelligence and Machine Learning courses present in the Master's Degree Course of Computer Engineering, Cybersecurity, And Artificial Intelligence. In particular, the topics of intersections are basic concepts on artificial neural networks.

Course Outline

- PyTorch Fundamentals (4 h)
- Implementation and Training of a Neural Network (4 h)
- Deep Learning for Computer Vision with PyTorch (4 h)
- Deep Learning for Natural Language Processing with PyTorch (4 h)
- Adapting to different frameworks: Tensorflow (4 h)