USEEU6 - Applied Artificial Intelligence

Mis à jour le 05-07-2024

Code : USEEU6

Unité spécifique de type cours

3 crédits

Responsabilité nationale :
EPN05 - Informatique / Stefano SECCI

Présentation

Prérequis

- Working knowledge of Python.
- Working knowledge of standard Python ML/DL libraries (sklearn, pytorch).
- Understanding of core ML/DL concepts (model, methods, training, performance evaluation, overfitting etc.).

Objectifs pédagogiques

This course introduces students to the practical applications of artificial intelligence (AI) across various industrial domains. Through a combination of lectures, hands-on projects, and case studies, students will gain the knowledge and skills necessary to develop and deploy AI solutions to solve real-world problems. Topics covered will include AI models and methods, practices for operating ML-powered solutions, usage of LLMs and ethical considerations in AI.

Programme

Contenu

The course covers the following topics:

- Introduction to Applied Artificial Intelligence
  - Overview of AI applications in different industries.
  - Ethical considerations and responsible AI practices.
- Brief recap: Foundations of Machine Learning/Deep Learning
  - Supervised, unsupervised, and reinforcement learning.
  - Classification, regression, forecasting.
  - Training, fine tuning and overfitting.
  - Performance evaluation of ML/DL models.
- Domains: computer vision, natural language processing, sequential data.
- AI Deployment and Integration
  - Model deployment strategies.
  - Introduction to cloud-based AI services.
  - Integrating AI models into applications and systems.
- Case Studies and Project Work
  - Analysis of real-world AI applications across industries.
  - Team project: Design and implementation of an AI solution for a specific use case.
- Project Presentation and Wrap-Up.
  - Final project presentations by student groups.
  - Reflection on key learnings and future directions in applied AI.

Modalités de validation

- Projet(s)

Description des modalités de validation

Project work; a project assignment to perform after the STC execution will also be evaluated.