COURSE DETAIL

ARTIFICIAL INTELLIGENCE
Country Italy
Host Institution University of Padua
Program(s) Psychology and Cognitive Science, Padua
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Psychology Computer Science
UCEAP Course Number 120
UCEAP Course Suffix
UCEAP Official Title ARTIFICIAL INTELLIGENCE
UCEAP Transcript Title ARTIFICIAL INTELLIG
UCEAP Quarter Units 5.00
UCEAP Semester Units 3.30

Course Description

This course presents the theoretical and computational foundations of brain-inspired artificial intelligence. The focus is on machine learning based on artificial neural networks, from simple models up to state-of-the-art deep learning models. The final part of the course introduces the use of neural networks as models of perception and cognition. Laboratory classes introduce students to computer simulations with artificial neural networks. The course discusses topics including artificial neural networks: mathematical formalism and general principles; supervised learning: perceptron, delta rule, multi-layered networks, and error backpropagation; generalization and overfitting; supervised deep learning; recurrent networks; unsupervised learning: associative memories and Hopfield networks, latent variable models, and Boltzmann machines; unsupervised deep learning; reinforcement learning; computer simulation as a research method in cognitive science; and connectionist models of perception and cognition. This course requires basic knowledge of mathematics (high school level), including notions of linear algebra, calculus, and probability, as well as knowledge of statistics and neuroscience as prerequisites for the course. Computer literacy is required for the lab practices.

Language(s) of Instruction
English

Host Institution Course Number
PSP5070139

Host Institution Course Title
ARTIFICIAL INTELLIGENCE

Host Institution Course Details
https://en.didattica.unipd.it/off/2021/LT/PS/PS2192/000ZZ/PSP5070139/N0

Host Institution Campus

Host Institution Faculty
Psychology

Host Institution Degree First Cycle Degree in Psychological Science
Host Institution Department
Course Last Reviewed 2022-2023

Print