COURSE DETAIL

OPTIMIZATION AND MACHINE LEARNING
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Engineering
UCEAP Course Number 184
UCEAP Course Suffix
UCEAP Official Title OPTIMIZATION AND MACHINE LEARNING
UCEAP Transcript Title OPTMZTN&MACHIN LRNG
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course is part of the Laurea Magistrale program. The course is intended for advanced level students only. Enrollment is by permission of the instructor. The course introduces solution algorithms for nonlinear optimization problems that are the basis of many machine learning tools which find applications in telecommunications, electronics, automatic control, and decision support systems. The course is divided into two modules. The first module introduces solution algorithms for nonlinear optimization problems. Topics in this section include: nonlinear optimization: introduction to mathematical programming, models, and algorithms; nonlinear models: unconstrained optimization and constrained optimization; relaxations and penalty algorithms; convex optimization: Lagrangian relaxation and barrier algorithm; and applications of convex optimization to support vector machine and deep learning. The second module introduces basic machine learning techniques for classification and learning. Topics in this section include: algorithms for clustering and classification; neural networks; and laboratory activity on applications for machine learning algorithms arising in real applications.

Language(s) of Instruction
English

Host Institution Course Number
95601

Host Institution Course Title
OPTIMIZATION AND MACHINE LEARNING M

Host Institution Course Details
https://www.unibo.it/en/teaching/course-unit-catalogue/course-unit/2022/466748

Host Institution Campus
BOLOGNA

Host Institution Faculty

Host Institution Degree
LM in TELECOMMUNICATIONS ENGINEERING; LM in ELECTRONIC ENGINEERING; LM in AUTOMATION ENGINEERING

Host Institution Department
Electrical, Electronic, and Information Engineering

Course Last Reviewed
2022-2023

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