UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Optimization Methods

2526-114R-1-01

Aims

To present fundamental optimization techniques. The course is organized to cover optimization techniques in both discrete and continuous settings and for both single- and multi-objective optimization problems.

Contents

Notions and concepts concerning some of the main Optimization techniques. The course provides the conceptual and theoretical tools that allow to understand how to implement such tecniques to approach computationally complex problems.

Detailed program

Recall on optimization methods (2 hours)
Evolutionary Algorithms for Discrete Optimization: Genetic Algorithms and Genetic Programming (4 hours)
Swarm Intelligence (4 hours)
Evolutionary Algorithms for Continuous Optimization: Differential Evolution and CMA-ES (4 hours)
Multi-objective Optimization (4 hours)
Approaching Large-Scale Problems (2 hours)

Prerequisites

Knowledge of fundamental algorithms and algorithmic techniques
Computation theory and computational complexity

Teaching form

The expected language of instruction is English. However, classes may be conducted in Italian if all students present in the classroom speak Italian and no student requests to attend the lessons in English.

Textbook and teaching resource

Provided by the teachers.

Semester

First semester

Assessment method

Oral presentation of a scientific article regarding the techniques presented during the course and agreed upon with the teachers.

Office hours

On appointment

Sustainable Development Goals

QUALITY EDUCATION