



ALGORITHMES COLLABORATIFS ET APPLICATIONS

COLLABORATIVE ALGORITHMS AND APPLICATIONS

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| Lecturers : 8.0 | TC : 16.0 | PW : 8.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : FR

Objectives

The aim of this course is to model and solve certain complex problems using so-called "collaborative" algorithms. These have the peculiarities of taking an example from nature (genetic algorithms, ant colonies, ..., neural networks) and of using the collective experience of "individuals" (agents) with weak capacities to make one. collective intelligence.

For example, neural networks seek to mimic the brain's ability to solve a problem by using the multitude of neurons (each with poor resolving capacity) that make it up.

The applications dealt with in progress are varied: character recognition, detection of outlines (in an image),

Keywords : multi-agents, robotics, genetic algorithms, ant colonies, neural networks, slam

Programme

Learning outcomes

- computer implementation of the proposed algorithms multi-agent modeling of complex problems

Independent study

Objectifs :

Méthodes :

Core texts

Simon Haykin. , *NEURAL NETWORKS: A COMPREHENSIVE FOUNDATION*, MacMillan Publishing Company,, 1994

Sebastian Thrun *PROBABILISTIC ROBOTICS (INTELLIGENT ROBOTICS AND AUTONOMOUS AGENTS SERIES)*, The MIT Press, 2005

Marco Dorigo *ANT COLONY OPTIMIZATION*, A Bradford Book, 2004

Assessment

- > Final mark = 50% Knowledge + 50% Know-how
- > Knowledge = final exam
- > Know-how = continuous assessment