Introduction to Artificial Intelligence

Fall 2022

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Goals and philosophy

General

- Understand the landscape of artificial intelligence.

- Be able to write from scratch, debug and run (some) AI algorithms.

Well established algorithms and state-of-the-art

- Good old-fashioned AI: well-established algorithms for intelligent agents and their mathematical foundations.

- Introduction to materials new from research ($\leq$ 5 years old).

- Understand some of the open questions and challenges in the field.

Practical
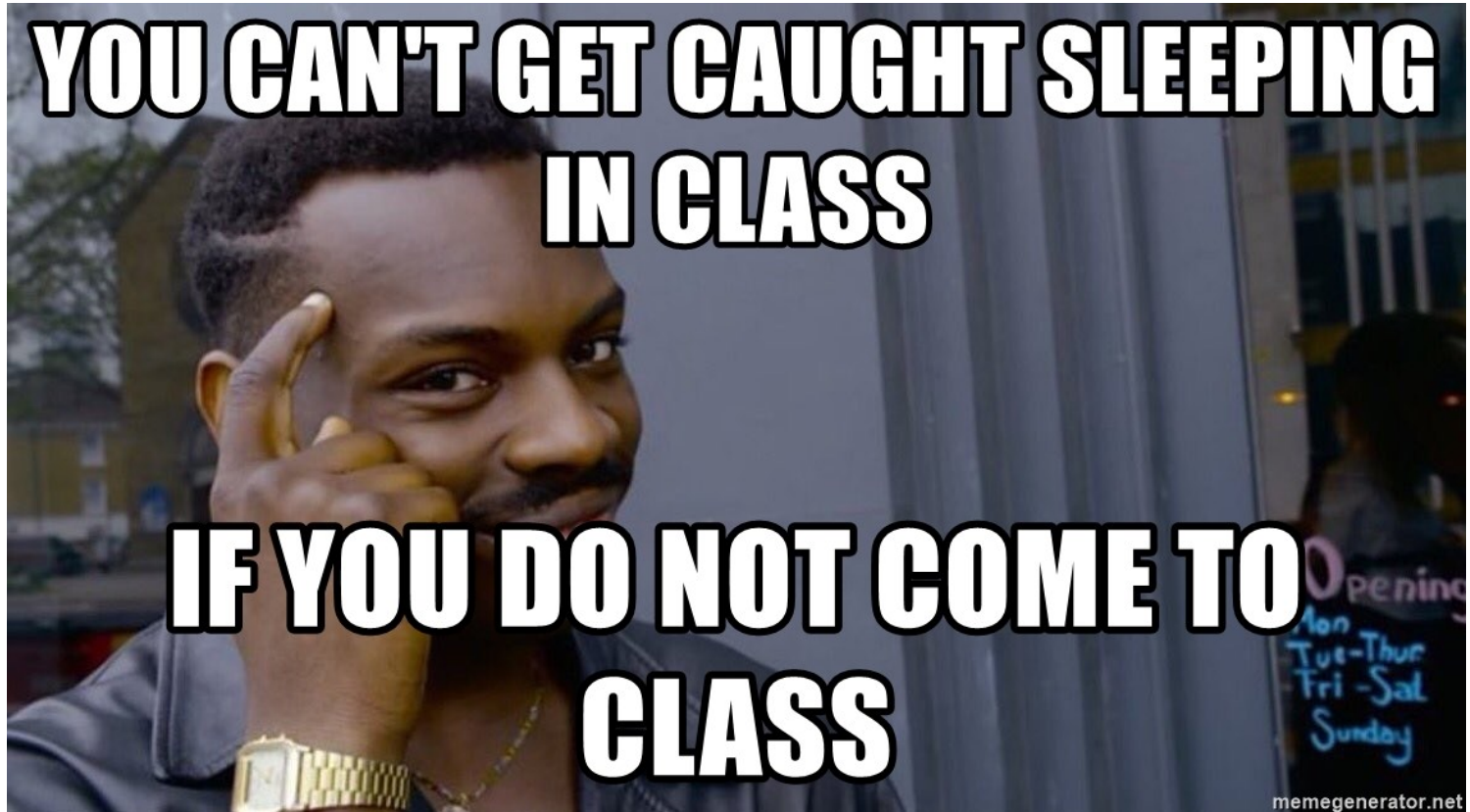
- Fun and challenging course projects.

Us

This course is given by:

- Theoretical lectures: Gilles Louppe

- Exercise sessions: François Rozet

- Programming projects: Arnaud Delaunoy, François Rozet

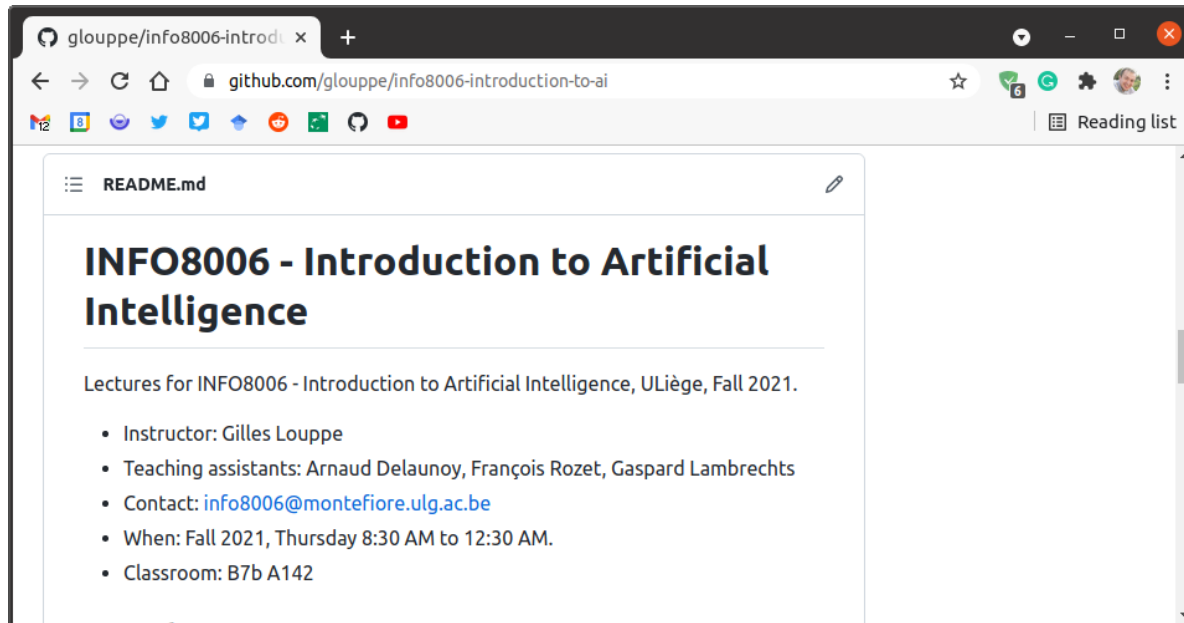Feel free to contact us at info8006@montefiore.ulg.ac.be for help.
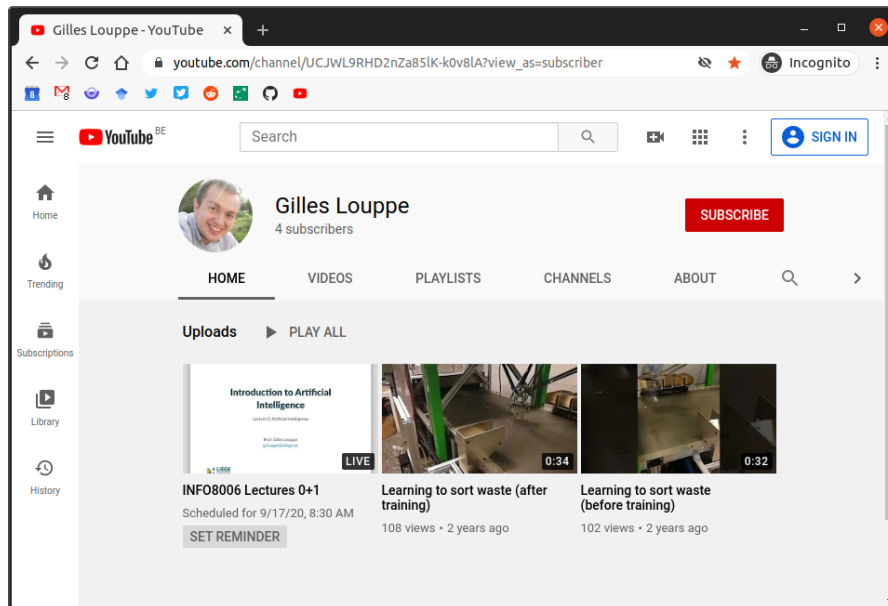
You

Materials

The schedule and slides are available at github.com/glouppe/info8006-introduction-to-ai.

- In HTML and in PDFs.

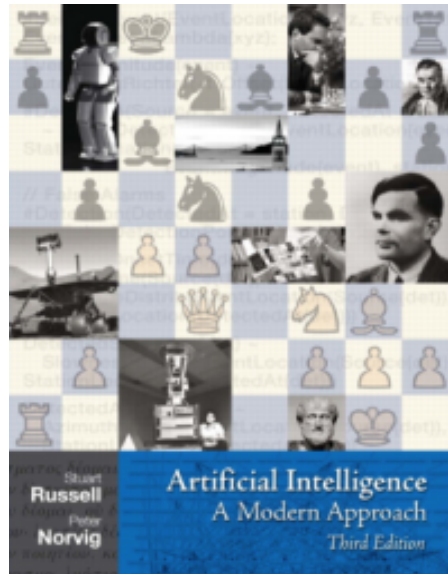- Minor updates up to the day before the lesson.

Videos

Videos from Fall 2020 are available at https://youtube.com/playlist?list=PLLqXZ_E-UXlybvRU7vgaYMTbxZdT73ZFD.

Textbook

The core content of this course is based on the following textbook:

> *Stuart Russel, Peter Norvig. "Artificial Intelligence: A Modern Approach",*
> *Third Edition, Global Edition.*

This textbook is recommended. It covers both the theory and the exercises.

CS188

- Some lessons, exercises, and various other materials are partially adapted from CS188 Introduction to Artificial Intelligence, from UC Berkeley.

- Cartoons that you will see in those slides were all originally made for CS188.

Projects

Programming projects

Implement an intelligent agent for playing Pacman. The project will be divided into three parts, with increasing levels of difficulty.
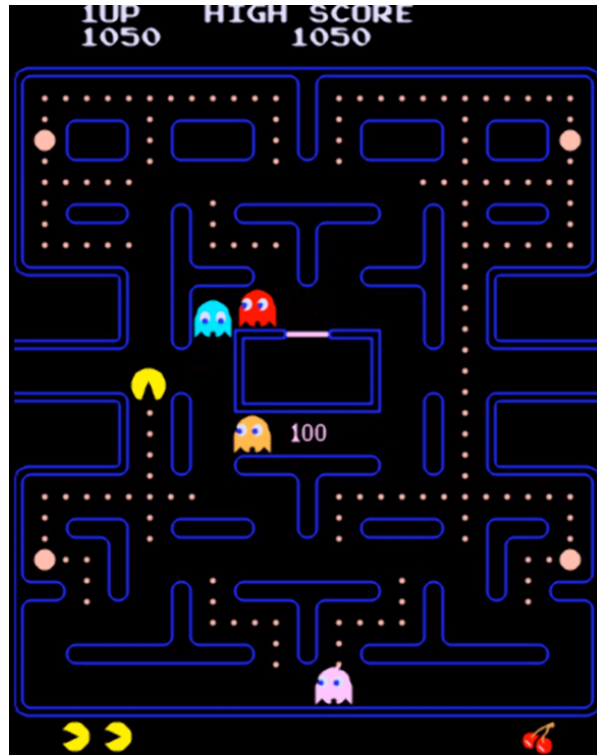
Reading assignment

Read a scientific paper in Artificial Intelligence. (Paper to be announced later.)

Evaluation

- Written exam (60%)

    - Short questions on the reading assignment will be part of the exam.

- Programming projects (40%)

    - Project 1: +1

    - Project 2: 20%

    - Project 3: 20%

    - Programming projects are mandatory for presenting the exam.

Honor code

You may consult papers, books, online references, or publicly available implementations for ideas that you may want to adapt and incorporate into your projects, so long as you clearly cite your sources in your code and your writeup. **However, under no circumstances, may you base your project on someone else's implementation.** One of the main learning outcomes of the programming projects is for you to better understand the course materials.

Plagiarism is checked and sanctioned by a grade of 0. Cases of plagiarism will all be reported to the Faculty.

Let's start!