ĐẠI HỌC BÁCH KHOA HÀ NỘI
VIỆN CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG

IT3160E
Introduction to Artificial Intelligence

Course presentation

Lecturer:
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School of Information and Communication Technology - HUST

General information

- Course name
  - Introduction to Artificial Intelligence
- Volume / planning
  - 15 x 4 x 45 minutes in total
  - 1 session of 4 x 45 mn each week, on Wednesdays afternoons
    - From 14h10 until 17h30, with a break of 20 minutes in the middle
- Lecturer
  - Muriel VISANI, Associate Professor
    - Contact: murielv@soict.hust.edu.vn
      - **Please use that email only, and Teams**
    - Department of Information Systems, SOICT, HUST
    - La Rochelle University, France

General information

- Prof. Visani (me)
  - Sent from La Rochelle University to Bach Khoa for at least 3 years
    - Since last year

La Rochelle University

- French public university, created in 1993
  - Provides 60 degrees in 4 faculties
  - Roughly 9,000 students, among which 10% foreigners
  - 466 lecturers / Ass. Prof. / Prof
  - Many student / researcher exchanges with Asia
    - In particular South-East Asia: Vietnam, Malaysia, Cambodia
    - In Hanoi, and in Computer Science / ICT:
      - 2 joint Master degrees with Hanoi universities
        - Vietnam National University (Trường Đại học Quốc gia Hà Nội)
        - University of Science and Technology of Hanoi (Trường Đại học Khoa học và Công nghệ Hà Nội)
      - Soon, hopefully, more joint degrees with Bach Khoa!

Contents of this course – in short

- Overview of AI
- Basic **concepts** of AI
- Major **techniques** of AI
- Important **applications** of AI

What will this course teach you?

- This course will introduce the basic ideas and techniques of artificial intelligence: intelligent agents, search strategies, constraint satisfaction, logic and automatic proofing, knowledge representation, uncertain knowledge and reasoning, machine learning.
- By doing a capstone project, students will gain practical experience in building an AI system.
- In addition, students will practice necessary skills for future work such as teamwork skills, research skills, writing reports and presentations.

Goals of this course

Goal	Description of the goal or output requirement	Output division/ Level (I/T/U)
M1	Understand basic concepts and techniques of AI	1.2
M2	Understand advances concepts and techniques in AI: uncertain knowledge and reasoning, machine learning	1.2
M3	Be able to apply the learned knowledge to build intelligent software through assignment in groups	1.3, 2.1-2.6, 3.1, 3.2
M4	Be able to identify research areas and potential developments of artificial intelligence	4.1-4.5

Contents of the course

- Chapter 1: Introduction
- Chapter 2: Intelligent agents
- Chapter 3: Problem Solving
  - Search algorithms, adversarial search
  - Constraint Satisfaction Problems
- Chapter 4: Knowledge and Inference
  - Knowledge representation
  - Propositional and first-order logic
- Chapter 5: Uncertain knowledge and reasoning
- Chapter 6: Advanced topics
  - Machine learning
  - Computer Vision

Reference

- Books
  - *Artificial Intelligence – A Modern Approach*. Stuart Russell and Peter Norvig. Prentice Hall, **THIRD EDITION**
  - T. M. Mitchell. *Machine Learning*. McGraw-Hill, 1997.

Evaluation

- **Final examination**: 60%
  - Written test or multiple-choice questions
    - Might depend on online / offline status
- **Continuous assessment**: 40%
  - Activeness in class / homework / quizzes: xx% (determined later)
  - Capstone project: xx% (determined later)
    - Students work in groups
    - Each group consists of 3-5 students
    - Study a problem, propose solutions, implement, and evaluate their effectiveness / efficiency
      - More details about the problem(s) will be given later on

Some information about the lectures

- In the teaching material, I often use *e.g.* and *i.e.*
  - Usually, common in English, but often HUST students don't know
  - *E.g.* = for example; *I.e.* = thus, therefore
- I create two versions of my slides: VStud and Vprof
  - For better **interactivity** during the lectures
  - Example of Vstud - VProf:

VStud

- **Question:**
  - What is the right solution to this problem?

VProf

- **Question:**
  - What is the right solution to this problem?
  - Answer: 42

- I'll give you the VStud beforehand, and play the VProf during the lectures
  - Please, fill in the blanks in the Vstud yourself during the lectures

Some information about the lectures

- For online sessions
  - Only the evaluation session(s) will be recorded
  - For other sessions, I will not record the lectures because of multiple reasons
    - Image reproduction right and personal privacy rights
    - Intellectual property rights
    - To keep the possibility to re-use some of the exercises/quizzes later
- But, to compensate for possible connection problems, I made the teaching material much more exhaustive than normal
  - I give you almost 2 times more slides than for offline lectures!!!
  - So that, if you cannot attend the lecture for connection problem, you still have the info you need
- If you cannot attend one lecture:
  - Please send me an email beforehand, or during the lecture:
    - murielv@soict.hust.edu.vn
  - Don't hesitate to ask questions on Teams to me / my TA / other students

Quizz

- In this course, we'll sometimes use Kahoot for interactive quizzes
  - Each student must create a Kahoot account
  - **Kahoot results might be used for student's evaluation**
  - You must follow strictly the instructions given in the slides for the Kahoot quizzes

Some educational recommendations

- Attend classes
  - If you cannot, please inform me in advance: murielv@soict.hust.edu.vn
- **Turn off your cell phone**
- Read the reference books
- **NO PLAGIARISM**
- Do not hesitate to
  - Ask questions **at any point during the lecture**
    - Even if it's only because of difficulties with English
  - Give your opinions / feedback
  - Discuss with me / my TA / other students, offline (when possible) or on Teams

Questions