

CODE xxx

Ethical and societal aspects of Artificial Intelligence

Crédits: **3 ECTS**
Semestre: **1**
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Content of the Course Unit

Ethical and societal aspects of Artificial Intelligence: Health is one of the areas most impacted by the use of artificial intelligence. Significant advances in the field of research, treatment and care have been announced, along with fears about the use that can be made of this technology. The objective of this course will be to address the fundamental principles for an ethical use of AI in medicine by seeing concrete cases of use, whether in medical search algorithms, the processing of patient personal data, medical robots or the governance of AI-based technologies in health care.

Detailed program

Course given by Alexandre Bretel (alexandre.bretel@normalesup.org) Ethics & AI chair
<https://www.ethics-ai.fr/>

1. Towards a Hippocratic Oath 2.0? Introduction to AI Ethics in Healthcare
2. The fundamental principles for deploying AI in healthcare
3. The connection between AI ethics and bioethics
4. Conceiving ethics-by-design AI for health
5. The notion of responsibility at the core of the doctor-AI-patient relationship
6. Conducting an ethical medical research in compliance with the GDPR
7. The Health Data Hub: towards which use?
8. AI and tele-medicine: for an ethical practice
9. The use of AI to support medical personnel in their missions: Olive's case study
10. Medical robots: can care be automated?
11. Reparative medicine or enhancement: what is the ethical framework for treatment using AI?
12. For a transdisciplinary approach to AI-based governance of health technologies

Competencies acquired for MIAI Label

Competencies	No vic e	Int er m ed iat e	Ad va nc ed
1 - Select and use the right tools for structuring, exploring, researching, storing, and using data			
1.1 - By collecting and consolidating, explaining the data for decision-making assistance (business intelligence)			
1.2 - Knowing the sources and the data acquisition to train a model			
1.3 - By assessing the ethical and regulatory impacts linked to the data and their use			
2 - Know and apply learning and symbolic AI technologies			
2.1 - Knowing the main models and tools (their context and application conditions, their inputs and outputs)			
2.2 - By modeling a customer or application problem and identifying the use of AI to solve it			
3 - Identify, explore and model AI technologies on real applications			
3.1 - By having the ability to interact with specialists in the field to identify the problem and specify the needs			
3.2 - By understanding the AI architecture dedicated to an application and by making it evolve so that it matches business or customer needs: data (collection, storage, management); learning; decision making; analysis and model relevance.			
3.3 - By knowing and mastering the management of an AI project in a company			
3.4 - Using AI to transform the company and its management			

Organisation

- 47 hours in total (courses, exams, personal and group exercises).
- 6 hours of classes spread over 12 capsules.
- Online exercises to verify the acquisition of knowledge of a module.
- Personal work before or after the course on documents (scientific articles, press, video) which can be used as a prerequisite for the course or for further study. This work can be done individually, or in a group of students at a distance. The work can be submitted in the form of a report that can be graded.
- Possibility to ask questions by the students by the opening of a forum allowing exchanges between students and the teacher. The forums can be open for a defined period of time, on a specific topic, or throughout the module for general questions.
- Three one-hour interactive videoconference sessions in which the teacher takes over the questions and difficult points of the course.

Rules of validation

- A series of reading materials with self-assessment questions (30% of the final score).
- Two group work sessions on articles with a report to be presented by the students (30% of the final score).
- A final evaluation (40% of the final score).