AI and Robotics

The link between technology, artificial intelligence (AI) and robotics is probably so evident that does not need much analysis. What should instead be at the centre of the present work is the ethical aspects that are peculiar to these two -often intertwined- spheres of inquiry: AI and robotics. Before proceedings further, we should thus clarify how we differentiate between the two.

AI refers to a more complex and theoretical concept (intelligence), and it is therefore in itself a more aleatory concept that can span through a number of fields of research. Most relevantly however, we could ascribe AI to belong to computer science -representing a branch with a particular emphasis on the creation of intelligent machines as human as possible. There are a number of standard tasks that modern, widespread machineries are already capable of doing thanks to their AI. For example, speech recognition allows our smartphones (remember that smart here means intelligent) to make a phone call or give us directions based on their capacity to recognize our voices, process what we are asking them and then provide us with an answer. Or make an action.

Hence, it is not surprising that society is currently pushing for the creation for a number of life changing innovations -such as self-driving cars for example- where there is a need for an enormous amount of data processed. Machines can interact intelligently only if they are provided with ways of categorizing the world that is commonly defined as knowledge engineering. Equally important is machine learning: without supervision, learning needs clear patterns in streams of inputs, while when supervision is available, numerical regressions and classification are involved.

Robotics is the other side of the coin of AI. Robots require (different degrees of) AI in order to successfully handle the job we assign to them.

In some instances, however, robots can also be partially developed in terms of "independent thinking", or not depending on AI but rather that of humans. For example, the use of a robotic arm in a study conducted at Brown University (https://news.brown.edu/articles/2012/05/braingate2) aimed specifically at using the intelligence of the patient included in the study (in this cases for therapeutic reasons, as they were tetraplegic).

Although such examples are defined as Brain-Computer Interface (BCI), these type of use of a computer is more "mechanical", and it assumes a supervision -if not a full engagement- of human intelligence. Hence making the distinction between AI and Robotics more evident.