1. Three definitions of Ai

   The study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognize pictures, solve problems, and learn ("Definition of artificial intelligence in English", 2018).

   By comparing the human mind to that of a machines one still has to worry about computer models that display intelligence but are clearly in no way related to how the human brain works. And is it then correct to call such models intelligent?

   It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable(McCarthy, 1998).

   When talkning about Ai its important that one understands that a computer is only intelligent to the extent that it does the right thing rather than the wrong thing. The right thing is whatever action is most likely to achieve a goal or maximizes expected utility.

   AI can be defined as the attempt to get real machines to behave like the ones in the movies (Sloman, 1998).

   I find this definition funny, and true.

2. Three definitions of Robotics

   Robotics is a branch of technology which deals with robots. Robots are programmable machines which are usually able to carry out a series of actions autonomously, or semi-autonomously (Brenner, 2007).

   A robot can be a lot of things these days, and it is a physical thing. That we can agree on.

   A field of robotics that studies the relationship between people and machines. For example, a self-driving car could see a stop sign and hit the brakes at the last minute, but that would terrify pedestrians and passengers alike. By studying

human-robot interaction, roboticists can shape a world in which people and machines get along without breaking each other (Simon, 2018).

This definition focus on the fact a robot has to make decisions that in turn make it useful. The sense, think, act paradigm.

Field robotics aims to bring technologies that allow autonomous systems to assist and/or replace humans performing tasks that are difficult, repetitive, unpleasant, or take place in hazardous environments. These robotic systems will bring sociological and economic benefits through improved human safety, increased equipment utilisation, reduced maintenance costs and increased production (Bidaud, 2012).

This definiton has a positive outlook on how advances in technology may displace certain types of work. Historically, technology has created more jobs than it destroyd over the last 140 years.

3. Three definitions of Machine Learning

Machine learning is knowing and using data appropriately, and the primary goal of a machine learning implementation is to develop a general purpose algorithm that solves a practical and focused problem (Gollapudi, 2016).

I think that goals change over time and this is also true for machine learning.

Machine learning is an evolving branch of computational algorithms that are designed to emulate human intelligence by learning from the surrounding environment (El Naqa & Murphy, 2015).

The word emulation in the context of human intelligence reminds me of the futuristic process of uploading the human mind.

Machine learning is programming computers to optimize a performance criterion using example data or past experience (Alpaydin, 2009).

This definition somewhat relies on that a problem is complex and can't be solved by using a traditional programming method. It is also important to have enough data without any "noise".
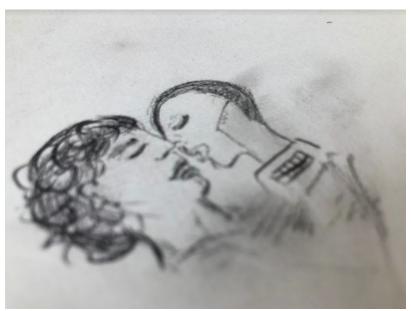
4. The relationship between AI and Robotics

However you choose to define a robot, *robotics* involves designing, building and programming physical robots. Only a small part of it involves artificial intelligence. Whereas AI involves programming intelligence. Many AI applications have nothing to do with robotics. The bridge between these two are artificially intelligent robots, which are robots controlled by Ai programs.

5. Make a text to describe your own definition of AI. Explain briefly this definition.

Artificial intelligence (AI) is a branch of computer science where the goal is that the machines should mimic human thinking and behavior. It involves developing computer programs to complete tasks which would otherwise require human intelligence. The key aspect that differentiates AI from more conventional programming is the word "intelligence". Non-AI programs can only carry out a defined sequence of instructions. AI programs mimic some level of human intelligence.

6. Make a drawing of an interaction with an AI - something that you imagine. Describe with some sentences your drawing.

A romantic vision of our future relationships with AI. Is Anthropomorphism the next cupid? I would like to stress the importamce of reflecting around the ethical issues to avoid the destruction of human relations. Interaction with a high preforming robot could result in humans getting disappointed with other humans altogether.

7. Read the article: "On the Subject of Objects: Four Views on Object Perception and Tool Use" by Tarja Susi / Tom Ziemke. Write in your own words one page about the different perspectives on the human relationship with tools.

    Functional tone (von Uexküll). Uexküll thought that organisms may have different Umwelts even if they live in the same place, and that each component of Umwelt has a functional meaning for the organism. The organism actively creates its Umwelt through repeated interaction with the world.

    Equipment (Heidegger). Heidegger thought that we as humans relate to objects that are not neutral. We relate to things that are usable. People use things. (Heidegger uses the German word "zeug", as in "werkzeug" tools). In cultures where you dont have a measuring tool, you will not see the object as a ruler.

    Affordance (Gibson). Objects posess affordance even though they are not in relation to the subject. Affordance is what the environment offers the individual.

    Entry point (Kirsh). In Kirsh's terms, entry points are affordances in the sense of inviting people to carry out activites. A button invites clicking.

8. Select one of the perspectives from the article, and go into detail when you describe it.

    Heidegger's ready-at-hand refers to the way one is foucused on the nail, or wood to be joined and not the hammer. Ready-to-hand suggests being actively 'in the world' or commitment, and even when Heidegger talks about those moments when an entity ceases to be ready-to-hand and is seen as present-to-hand, he uses the term circumspection or a casting of the eye around, so that the Dasein (the person) is in the centre.

    To be present-at-hand often requires familiarity with the equipment. We simply stare at the hammer as an object, trying to make sense of it by some kind of

intellectual analysis. We will never understand the true being of the hammer as a tool, we are simply confronted with a curious lump of inert physical stuff.

9. Select one other article from module 1, and write with your own words what this article is about.

   Does AI make PD obsolete? Exploring challenges from Artificial Intelligence to Participatory Design

   The paper investigates whether if AI can replace PD by providing individualized advice and suggestions that are adapted to personal needs and situations. They present different challenges when faced with the technology of Ai. They argue that PD is still important, but that AI poses some challenges to PD. It can be challenging for both users and designers to grasp the possibilities and limitations of Ai.

10. Select one documentary or a fictional film, book or game: describe with your own word how interaction with AI is portrayed in this work.

    Ex Machina (2014)

    Turing test. When Nathan tests AVA he is interested in whether she's actually sentient and conscious.

    Natural Language processing. When AVA is communicating.

    Singularity. When Nathan says that there is a next model of AVA will attain singularity.

    Computational creativity. When AVA is making a joke based on what he chooses in AVA.

    Multimodal deep learning. From the beginning AVA is capable of understanding emotions from facial expressions. Nathan has collected audiovisual data from billions of people, to collect their most intimate experiences. This information has been uploaded to Ava's brain, which is very flexible and advances independently like humans.

11. Describe what you understand by autonomy; both human autonomy and machine autonomy.

The human atonomy is an individual's capacity for self-determination or self-governance. An autonomous robot is a robot that can perceive its environment, make decisions based on what it perceives and has been programmed to recognize and then actuate a movement or manipulation within that environment. As machine learning algorithms improve, we will have robots thatl responds to their environments in ways that humans didn't explicitly teach them to.

12. When was the term "AI" first coined? Please make a reference.

The term artificial intelligence was first coined by John McCarthy in 1956 when he held the first academic conference on the subject (McCarthy, 1998).

13. Articulate one question for the article "What we talk about when we talk about context" by Paul Dourish in the curriculum.

What does Dourish mean that it is the users and not the designers who make sense of the technology they use?

14. Articulate one question for any other article in the curriculum.

How does Minsky (Minsky, 1985) portray the mind?

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