Individual assignment

First iteration

1. **Search and find three definitions of AI, describe these briefly. Make references.**

Definition from Wikipedia: *"Artificial intelligence (AI), sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and other animals" (Artificial Intelligence, n.d.a).*

I think this is a rather vague definition. What kind of intelligence do we talk about here?

Definition from Oxford Dictionaries: *"The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages" (Artificial Intelligence, n.d.b).*

This definition is more on point, and easier to grasp because of examples.

Definition from Merriam-Webster:*"A branch of computer science dealing with the simulation of intelligent behavior in computers. The capability of a machine to imitate intelligent human behavior" (Artificial Intelligence, n.d.c).*

Again, what is really "intelligent behavior"? This definition need more explaining to be understandable.

2. **Search and find three definitions of Robotics, describe these briefly.**

Definition from Merriam-Webster: *"technology dealing with the design, construction, and operation of robots in automation" (Robotics, n.d.a).*

I don't get what "in automation" means. Otherwise it is understandable and direct.

Definition from Cambridge Dictionary: *"the science of making and using robots" (Robotics, n.d.b).*

Very short and concise, but we may lose some details which the other definitions give.

Definition from Oxford Dictionaries: *"The branch of technology that deals with the design, construction, operation, and application of robots" (Robotics, n.d.c).*

Similar to the one from Merriam-Webster, but adds "application of robots". Not sure what that means.

3. **Search and find three definitions of Machine Learning, describe these briefly.**

Definition from Wikipedia: *"Machine learning is a field of computer science that uses statistical techniques to give computer systems the ability to "learn" (e.g., progressively improve performance on a specific task) with data, without being explicitly programmed" (Wikipedia).*

I like this definition because they briefly explain what it means when a computer "learn", and what kind of techniques that are being used to give the computer this ability.

Definition from Oxford Dictionaries: *"The capacity of a computer to learn from experience, i.e. to modify its processing on the basis of newly acquired information" (Oxford Dictionaries).*

This definition is very short. To understand this i need more information about how the computer use this newly acquired information.

Definition from Techopedia: *"Machine learning is an artificial intelligence (AI) discipline geared toward the technological development of human knowledge. Machine learning allows computers to handle new situations via analysis, self-training, observation and experience." (Techopedia)*

This definition list examples, which is good, but i do not understand what "new situations" is, or how this ability happens.

4. **Write in three to five sentences the relationship between AI and Robotics as you understand this.**

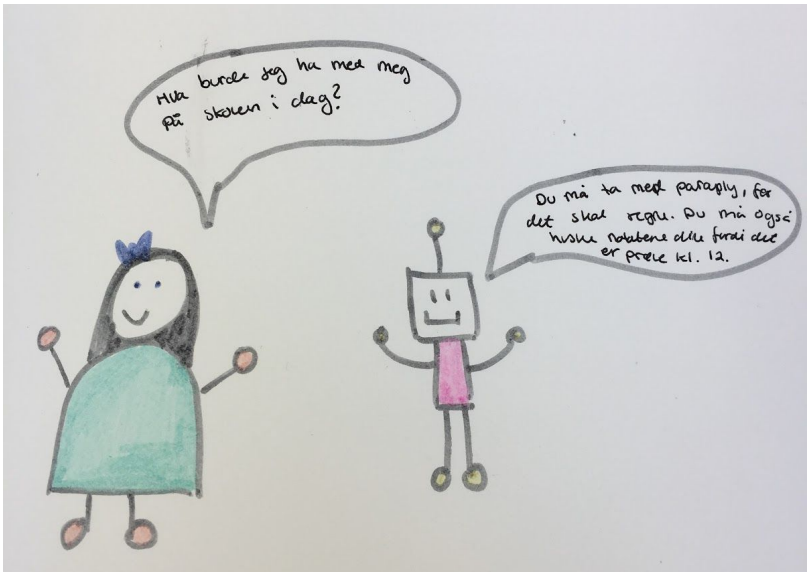
AI are in a way the inside of the computer and robotics is the outside. You can have robots without AI, AI without robots, but you can also robots with AI. If we want to make robots who seem like humans, who can act on their own, they need AI.

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

AI is intelligence (within a machine) who is acquired from "learning" from huge data sets. Machines (or robots) with AI are able to communicate with humans on their own, or solve problems for humans.

My definition focuses on how the intelligence is achieved (as I have understood it), and what AI basically are being used for.

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



I imagine that in the future we all have our own assistant, whether it is a physical robot, or a robot like Siri. This robot can do anything for us, like answer any questions, make phone calls for us, write email, write grocery list, clean our house, cut the grass etc.

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.**

1. **Functional tone (von Uexkull)**

This perspective is placed within theoretical biology. According to Uexkull, we all live in our own subjective universe. Objects are neutral and is only assigned meaning when a subject interacts with it.

2. **Equipment (Heidegger)**

This perspective is placed within philosophy. 'Equipment' refers to
- the thing (non-human beings)
- its usefulness (it it used to get something done)
- its context (fitting of an object into a wider context is termed *involvement* or *relevance*)

Equipment is what it is only when it is used.

There is an interdependent relation between subjects and objects. The way a tool is perceived depends on the subjects ongoing activity. The equipment has to fit into the context.

3. **Affordance (Gibson)**

This perspective is placed within psychology. What we see when we look at an object is its affordances. We perceive what it affords us. The affordance does not change as the need of the observer change, but the observer may or may not perceive the affordance.

4. **Entry point (Kirsh)**

This perspective is placed within cognitive science. Entry points invites us to do something. People create collections of entry points that say something about what is happening or what has to be done, eg. piles of paper, folders, day planners, lists etc. Entry points can be made either with a high or low degree of structure. They provide support for work tasks. There are several different characteristics to entry points:

- Intrusiveness
- Richness in metadata
- Visibility

- Freshness
- Importance
- Relevance

Kirsh's theory look at how active subjects make use of environmental structures to achieve tasks. Entry points may be objective (user independent) or subjective (user dependent).

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

Functional tone: The meaning subjects assign to an object is its "functional tone". An object can have different qualities. The example used is that a stone can have a "path-quality" when it provides support for walking on a road, or it may have a "throw-quality" when being thrown at an angry dog. These qualities does not depend on any properties of the object. Uexkull sees it as all properties of objects are perceptual cues that the subject imprints on it. Meaning that the subject gives meaning to objects. What meaning the subject assigns to the object depends on the subjects mood.

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

Toward a Framework for Human-Robot Interaction - Sebastian Thrun

The article give a description of past- and present-day robotics. It identifies three kinds of robots (industrial robots, professional service robots and personal service robots) and briefly explains the difference and some facts about use. The article then goes into robot autonomy, which is described as "a robot's ability to accommodate variations in its environment". We have to take into consideration the degree of a robots autonomy when we study human-robot interaction. The three kinds of robots mentioned operates on different levels of autonomy.

The article then goes over to talking about human-robot interfaces, which also will differ in the various kinds of robots. We can distinguish between indirect (commands and reaction) and direct interaction (communication both ways).

The article ends with some open questions directed towards modern-day human-robot interaction.

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.

Westworld: In this series the robots are extremely real, and hard to differentiate from humans. They are being used as props in a theme park, where people can do whatever they want with them. The humans have no respect for the robots, and a robots life is worth nothing. They are being reprogrammed for each life they live, but the AI takes over and humans lose control over the robots. They become their own individual with feelings, and are looking for revenge.

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

Autonomy to me is that you have the ability to make your own decisions. All free humans have this ability (although you have to comply with the law). As I understand machine autonomy now, it is that machines have the ability to do things automatically, based on how they have been programmed. Well developed AI could give machines the ability of autonomy more like humans . the ability to make own decisions. The decisions made then have to be based upon something, which means that machines have to have learned something before being able to make decisions.

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

The term “AI” was first coined in 1955 by John McCarthy in his proposal for the 1956 Dartmouth Conference, the first artificial intelligence conference (Childs, 2011).

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

My question is more of a reflective question in regards to AI and context:

How can we make a machine who interpret the context as presented by Dourish, and the norms (orderliness from without) that follow, and adjust its own practice accordingly?

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

Interactive Robots as Social Partners and Peer Tutors for Children: A Field Trial - Kanda, Hirano and Eaton

How did the researchers prepare the children for the interaction (except from the safety instruction)? How might they have prepared the children in a better way, to avoid that they got too high expectations in regards of interacting with the robot?

References

Artificial Intelligence (n.d.a). In *Wikipedia*. Retrieved 03.09.18 from https://en.wikipedia.org/wiki/Artificial_intelligence

Artificial Intelligence (n.d.b). In *Oxford Dictionaries*. Retrieved 03.09.18 from https://en.oxforddictionaries.com/definition/artificial_intelligence

Artificial Intelligence (n.d.c). In *Merriam-Webster*. Retrieved 03.09.18 from https://www.merriam-webster.com/dictionary/artificial%20intelligence

Childs, M. (2011, 01.11). John McCarthy: Computer scientist known as the father of AI. *Independent.* Retrieved 03.09.18 from https://www.independent.co.uk/news/obituaries/john-mccarthy-computer-scientist-known-as-the-father-of-ai-6255307.html

Machine Learning (n.d.a). In *Wikipedia.* Retrieved 03.09.18 from https://en.wikipedia.org/wiki/Machine_learning

Machine Learning (n.d.b). In *Oxford Dictionaries.* Retrieved 03.09.18 from https://en.oxforddictionaries.com/definition/machine_learning

Machine Learning (n.d.c) In *Techopedia.* Retrieved 03.09.18 from https://www.techopedia.com/definition/8181/machine-learning

Robotics (n.d.a). In *Merriam-Webster*. Retrieved 03.09.18 from https://www.merriam-webster.com/dictionary/robotics

Robotics (n.d.b). In *Cambridge Dictionary.* Retrieved 03.09.18 from https://dictionary.cambridge.org/dictionary/english/robotics

Robotics (n.d.c). In *Oxford Dictionaries.* Retrieved 03.09.18 from https://en.oxforddictionaries.com/definition/robotics