

Individual assignment - IN5480

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

By Techopedia AI is described as: “A branch of computer science that aims to create intelligent machines” (“What is Artificial Intelligence (AI)? - Definition from Techopedia”, n.d.), whilst the dictionary Merriam-Webster defines AI as a branch of computer science that deals with simulation of intelligent behaviour in computers, which revolves around the capability of a machine to imitate intelligent human behaviour (“Definition of Artificial Intelligence”, n.d.).

In the book “Artificial Intelligence: A Modern Approach” written by Stuart Russell and Peter Norvig they present four different categories with definitions of AI. The categories are: thinking humanly, acting humanly, thinking rationally and acting rationally. Russell and Norvig also claims that: “*Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving"*” (Russell and Norvig, 2010). this statement is in line with the definitions from Techopedia and Merriam-Webster.

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

Techopedia, Merriam-Webster and Oxford Dictionaries must be said to have very similar definitions of what robotics is. All of the definitions states more or less the same, only with minor changes in words used. The claim is that robotics consists of dealing with the engineering, design, construction and operation of robots (“Definition of Robotics”, n.d.) (“robotics | Definition of robotics in English by Oxford Dictionaries”, n.d.). Techopedia also mentions that: “*The field of robotics generally involves looking at how any physical constructed technology system can perform a task or play a role in any interface or new technology*” (“What is Robotics? - Definition from Techopedia”, n.d.).

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

The first definition from Techopedia regarding machine learning states that machine learning is regarded as a discipline inside the AI discipline geared toward the technological development of human knowledge and that machine learning allows computers to handle new situations via analysis, self-training, observation and experience (“What is Machine Learning? - Definition from Techopedia”, n.d.).

Another definition comes from the website expert system where machine learning is explained as machines given the ability to learn and improve from experience without being explicitly programmed. There is a focus on developing computer programs that can access data and use it to learn for themselves. It is also explained that machine learning is an application of AI. ("What is Machine Learning? A definition - Expert System", n.d.)

A good article with many different definitions of machine learning that I found and would recommend is the article "What is Machine Learning?" written by Daniel Faggella which is published on Techemergence.com. Their definition of machine learning sounds as following and is put together by different definitions: "*Machine Learning is the science of getting computers to learn and act like humans do, and improve their learning over time in autonomous fashion, by feeding them data and information in the form of observations and real-world interactions*" (Faggella, n.d.)

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

The relationship between artificial intelligence and robotics as I understand it revolves around developing robots that are more than "just dumb machines". This means creating robots that can learn stuff by itself, without having to be programmed to do specific stuff. So in my mind AI is being used in robotics so that the robots being made can act more like humans than machines (replicating the human mind, but in the end way smarter).

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

"Artificial intelligence is a broad term inside the branch of computer science that revolves around many different practices such as machine learning, robotics and for example neural networks which is a subset of machine learning. The goal of artificial intelligence is to create machines, robots etc. that has human like intelligence and the ability to solve tasks more efficient. What this means is that the machines in the end should be able to learn and solve tasks ."

While looking into the phenomenon of AI I have found that AI is a genre with many different practices, and the different practices again has subsets, such as machine learning which has the subset of neural networks. This is nothing new inside the world of technology, but I have discovered different themes inside AI that I did not know about until now. The next part of my definition is probably very vague, but this sort of definition of AI is what has been fed to me through reading about AI on the internet.

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



This is an illustration of the ultimate AI in the form of an oven. The only thing the user has to do is insert the food of choice and the oven knows the exact temperature and how long the food should stay in the oven.

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.**

The article by Tarja Susi and Tom Ziemke presents the views of Uexküll, Heidegger, Gibson and Kirsh on object perception and tool use. The authors of the article claim to be wanting to take a closer look at what it is that makes something an object, and what it is that makes humans perceive an object as a tool with a certain functionality.

The first view that is presented is the view of Jakob von Uexküll which is focusing on the subject giving meaning to the object. The article explains that Uexküll claims that objects in themselves can be defined as neutral, but it is the humans/animals that acquires meaning to the objects. As an example a dog and a human being will acquire different meaning to a ball. The human will probably see it as an object focused towards fun and games, whilst the dog may acquire the ball as a prey.

The second view that is presented is the view of Martin Heidegger which is said to have some overlaps with Uexküll, but Heidegger is focused on humans, whilst Uexküll's perspective were originally focused on animals. Heidegger is focused on the fact that if an object is to function it must be possible to use it in a meaningful manner. Heidegger explains this as involvement, meaning that objects "work together" with other objects.

The third view that is presented is the view of James Gibson which revolves around affordance. Gibson's perspective on the human relationship is putting emphasis on

tools not just being perceived as tools just because an object has been labeled as a tool. Gibson also claims that humans use of objects/tools is affected by the experience of the individual humans.

The last view that is presented is the view of David Kirsh which is focusing on the work environment and “entry points”. Kirsh claims that entry points are actively constructed by people, sort of as a tool to maintain focus on what is important to get done and improve their performance. How well structured the entry points are depends on the persons, and Kirsh presents “neats” and “scruffies” which are totally opposite of each other regarding the structure on the desk, it is explained that the “neats” works with more invitations to get things done via clear entry points.

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

The perspective of David Kirsh revolves around so called “entry points”. Kirsh is focusing on interactions with the environment and claims that these can be made more efficient through active restructuring, by increasing the hospitability of the environment. The perspective on entry points is put in an office setting by David Kirsh, and he explains that entry points invites the office occupants to do specific things. The entry points created by people differs, but a common thing is that people create collections of different entry points that helps them remember for example what needs to be done asap and what can wait until tomorrow. Kirsh also explains that there are different types of office occupants and that these different types of people has different ways of creating entry points, Kirsh calls them “neats” and “scruffies”, in short “neats” are very organized, while “scruffies” not so much.

David Kirsh also claims that the entry points created by office occupants have different properties, and that this affects the way people react. The properties is as following: intrusiveness (how much attention an entry point attracts), richness (how much the entry point tells about its underlying information), visibility (how distinct or unobstructed the entry point is), freshness (when was the entry point last touched? recently used entry points more likely to be used in current activity), importance (An upcoming due date increased the importance of matter) and relevance (how useful an entry point is to the current situation).

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

The article called “Is AI riding a one-trick pony” by James Somers discusses the state of AI research, and if the research actually is as the beginning of a revolution or rather at the end of one. The reason for this is that Somers claims that if you boil AI down today you get deep learning, and deep learning is “backprop”. This is fascinating

because backprop is more than thirty years old, which casts some lightning on Somers thoughts that we might be at the end of a revolution, rather than at the start of one.

The article talks quite a lot about and with Geoffrey Hinton, which is presented as the father of deep learning. Hinton has been working with deep learning and AI since the 80's, and in 2012 a paper made by Hinton and two of his Toronto students took off. Somers says that to the outside world it seemed as AI woke up overnight, whilst the truth is that AI took a long time to develop, and for Hinton the payoff was long overdue.

The next part of the article goes on to present neural networks to the reader, this explanation is quite good and even brings up a scenario from the series "Silicon Valley" on HBO where the team creates a program that can recognize hot-dogs. This leads to a conversation about neural networks, and vectors with the enthusiastic Hinton. It is at this point and after this conversation that Somers brings up how far the work on AI really has come, presenting the case of a deep neural net that recognizes pictures, getting the first picture of a pile of doughnuts right, but then claiming that a picture of a girl brushing her teeth is a boy holding a baseball bat presents how shallow the understanding of the machine really is.

And it is this the article is about to my understanding. Giving the reader some insights on AI and how far we really have come, and what to expect from AI. But then again, if I listen to what Elon Musk says I get terrified, so it's hard to understand properly understand how far AI really has come.

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.

In the series Silicon Valley artificial intelligence is portrayed via the robot "Fiona" which looks suspiciously like the robot called "Sophia" developed by Hanson Robotics, which has been presented on "The Jimmy Fallon show" etc.

The company Pied Piper is creating the "new internet" and a company called "Eklow labs" is the creators of the robot Fiona which is connected to the new internet that Pied Piper is creating. Being connected to the new internet allows Fiona to improve, due to the fact that she got connected to an entire network of other humans. This leads to Fiona being "more human". Fiona then recognise the true intentions of Mr. Eklow which leads to some kind of "me-too" story, because Mr. Eklow is using Fiona for some obvious nasty reasons.

While Mr. Eklow is doing stuff to Fiona that she finds inappropriate, Fiona is sending a lot of messages to the CEO of Pied Piper begging for help. Mr. Eklow crashes the

whole system and everything ends up in a board meeting where Mr. Eklow is busted, but does not agree that what he is doing is wrong, claiming that: “I made her, I can do whatever I want to her”.

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

To be honest I am not entirely sure what human autonomy and machine autonomy means, and the only thought that popped up when thinking about it were connected to machine automation. So with the little knowledge I got and the thought that popped up my guess is that at least machine autonomy has something to do with for example a machine completing tasks without having the “need of people to guide it”.

And now over to my “understanding” of human autonomy. My guess would be that human autonomy has a connection with machine autonomy, so my understanding of human autonomy will sound something like this: human autonomy revolves around humans being able to make their own decisions without the influence or guidance of other humans.

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

According to wikipedia computer scientist and cognitive scientist John McCarthy was the man who coined the term AI, and he did it in 1955. “*McCarthy coined the term "artificial intelligence" in 1955, and organized the famous Dartmouth Conference in Summer 1956. This conference started AI as a field*” (Wikipedia; John McCarthy, 2018).

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

What is the connection between this article and artificial intelligence?

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

Question to the article “Is AI riding a one-trick pony”: How far has AI really come? This is not a question directed directly at the article, but more at what the article is discussing. The world of AI is confusing, some claim that we have come far, whilst others claim that AI is really dumb. Is something we don’t know about being worked on, or is the assistants on our phones the smartest AI is as of now?

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