

Individual assignment 1 - Johnny Lam

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

Intelligence is an important matter for us, humans, intelligence is one of the factors that differentiate us from other animals. The field of artificial intelligence tries to develop a human-made intelligence, which can replicate many of the functionality that the human brain can do. One of the main points is that the field of AI does not only understand the mind, such as a psychologist, but the field also build intelligent entities. The current state of AI has many subfields, ranging from learning and perception to specific tasks such as winning a game of Chess or Go, driving a car and diagnosing diseases. (Russell, 2016)

Artificial intelligence as an attempt to design an intelligent agent. The agent is most of the time design to act in a specific environment, to improve that environment.

Artificial intelligence can also be seen as synthetic intelligence since it is not mad natural, but it is human-made. Synthetic intelligence can be compared to how some pearls can be synthetic and does not mean that it is not a real pearl. [1]

“AI is the simulation of human intelligence process by machines.”(techtarget.com, 2018). The important keyword in this definition is processed. The process can include different kinds of functions such as learning, perception, reasoning, and self-correction[3]. Taken from the field of psychology the intelligence process can be compared to information processing, information processing is a way to describe the mental processing of how the brain and mind work[4]. Many of the mental processes are already implemented in a modern personal computer, such as short-term memory, long-term memory. AI an attempt to further develop a more realistic human brain, in such a way that the processing of information is handled intelligently.

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

Robotics is a discipline with root from engineering and science. Robotics attempt to substitute parts of human functions with a machine, such as cognition, walking, sensory, speech and other things humans can currently do. The technology can be used for a different purpose, as simple as optimize and increase the efficiency of a simple human task, to an operation to detect minefields and other high-risk jobs. (Wikipedia)

According to Russell(2016), robotics are robots that are a further development of intelligent agents that can manipulate physical objects, and therefore partly replace human tasks. It is

important for robotics to be able to perceive the world through different sensors, in such a way that robots can interact with the physical world. Robotics perception is related to common decision making on how the robot will move, it is similar to the human motor system that decide how and which movements on will take. For the robotics motor system, the function will be task include localization, mapping and object recognition. (p. 1010)

Robotics is a branch in technology that makes an improvement on design, construction, operation, and another usage if the robot (Oxforddictionaries, 2018). It is, in other words, a big field, but is mainly focused on all the different application of robots.

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

Machine learning's one main task is to extract useful information from a observed or collected data, but machine learning also focus on how to develop modelling techniques (Kononenko, 2017). Kononenko explains machine learning through the ussag of algorithms used for data mining, and explains that machine learning is a subfield of artificial intelligence (p. 1). The usage of machine learning is applicable for many different field such as industry, medicine, economics, natural and technical science and many other.

The field of machine learning is a field with roots from computer since that used mathematical and statistical techniques to give computer software a way to learn through the different data input, without a programmer coding how each and every output should be (Wikipedia).

“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.” (Techemergence, 2018)

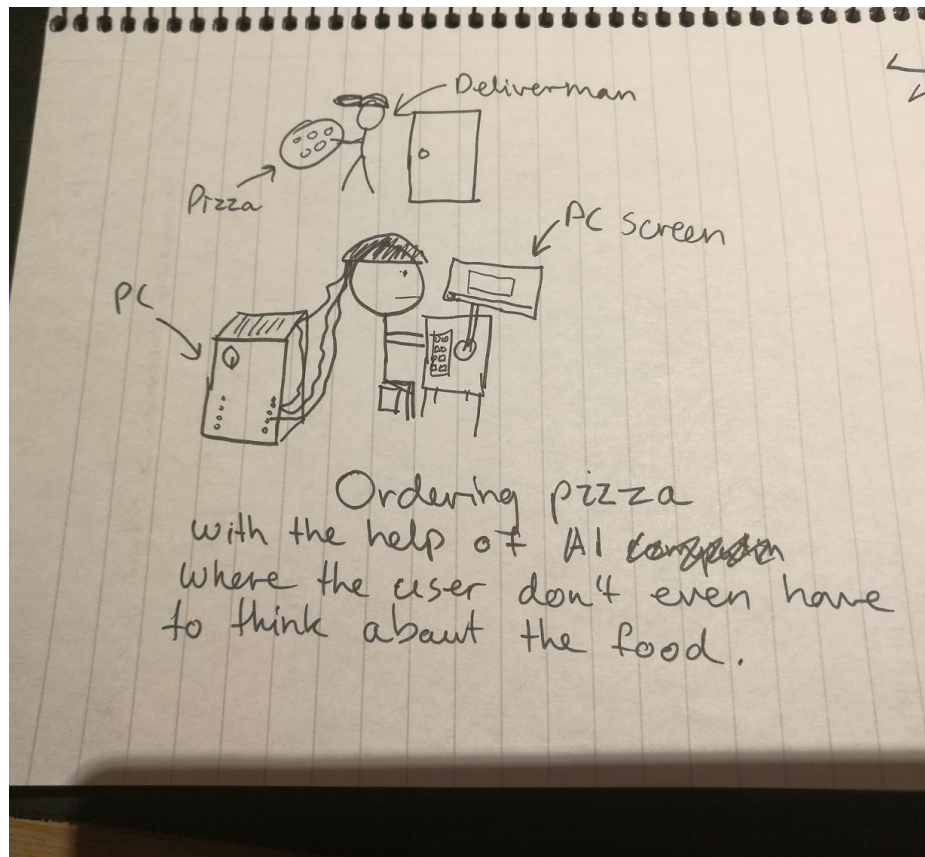
4. Write in three to five sentences the relationship between AI and Robotics as you understand this.

AI and Robotics is both a field that in the end wants to simulate human function, where AI focus on human cognition and process, and robotics focus on human motor system movement. The section where robotics and AI meets is where there will be a robot that has basic human functions.

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

AI is an attempt to simulate parts of human brain, such as learning, perception and sensation. The simulated intelligence is a process or a type of machine learning algorithm which can be applied for all sort of field and tasks. The end goal for AI will be to throw AI out in the "wild", and make it learn and do decision on its own according. My definition is described with a cognitive psychology perspective, where the study of human brain can be applied to computer science and AI. The brain is still a complex subject, but some of the basic function can already be described with current research. What we want to do with AI is to apply these basic human brain function to the world of technology.

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



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.

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8. Select one of the perspectives from the article, and go into detail when you describe it.
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9. Select one other article from module 1, and write with your own words what this article is about.

The article: Cummings, M., 2004. Automation bias in intelligent time critical decision support systems, in: AIAA 1st Intelligent Systems Technical Conference. p. 6313.

The article explains how automation bias is affecting decisions. Automation bias is explain as bias where human sees the decision by computers as the right answer. Automation has different kind of levels, ranging for not doing anything to taking full control and ignores the human. The designer of the AI needs to take into consideration on how human perceive the AI. For critical decision it is important that human does not look on the AI as system where there is not any errors, it should rather be design to support human decisions.

The research on automation bias is currently not an empirical, but rather it is evidence on this bias in laboratory settings, because "real world" test will be dangerous and deadly if proven to be true.

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.

Light Novel book: Sword art online

I will describe sword art online, which is a story from a light novel book. In sword art online the characters are living in the future japan where virtual reality (VR) is a common thing, and there is this game call sword art online. In this VR world there is an AI called Yui. Yui is a fully function AI, with all of the human characteristics.

Yui is an AI that heavily influence the characters, since Yui does have normal human, emotion affects how the everyone do decision. Even when the Yui is only a support character for the story, one can understand that decisions and judgments that are made are influence from Yui. Not only is their influence through emotion, but it is also affected through all the movement and and physical decisions that Yui does. AI in this light novel book is not something that is reflected as a bad or evil being, the only evil being here is other humans that have corrupted thoughts. Not even once is the AI showed as a self centered being, but rather a being that at all times helps and supports its owner. This

contradicts some of the modern belief that AI will grow out of control and become something evil such as in popular movies.

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

Autonomy as I understand it is as simple as the ability to make his or her own decisions, without external influence. For the case of human autonomy it is about how a human can make a decision without the influence or help of other people. The main point is to work automatically without the need for corrections by other people.

Machine autonomy is more or less the same as it is for human, where we want a machine or robot to work independent of a human being, for a given scope. The robot need to make decisions without the direct influence of human, in such a way that the machine can find out the most effective way to solve a given task.

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

AI was first coined in 1956 by John McCarthy. (McLeod, 2007)

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

Question: Can the term be defined with the help of cognitive psychology perspective?

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

For the article: Giuliano, V.E., 1982. The Mechanization of Office Work. *Scientific American* 247, 148–165.

Question: Mechanization and automation has long been a topic for reduction of cost, and efficiency improvement. At what point is it unethical to automate an office task?

Reference list:

Poole, D. L., Mackworth, A. K., & Goebel, R. (1998). *Computational intelligence: a logical approach* (Vol. 1). New York: Oxford University Press.

Russell, S. J., & Norvig, P. (2016). *Artificial intelligence: a modern approach*. Malaysia; Pearson Education Limited,.

Techtarget (2018, August.) *AI (artificial intelligence)*. Retrieved 19.september 2018, from <https://searchenterpriseai.techtarget.com/definition/AI-Artificial-Intelligence>

Information Processing Model. (n.d.). In *Alleydog.com's online glossary*. Retrieved 20. september 2018, from: <https://www.alleydog.com/glossary/definition-cit.php?term=Information+Processing+Model>

Wikipedia contributors. (2018, September 19). Robotics. In *Wikipedia, The Free Encyclopedia*. Retrieved 08:16, September 20, 2018, from <https://en.wikipedia.org/w/index.php?title=Robotics&oldid=860266004>

Kononenko, I., & Kukar, M. (2007). *Machine learning and data mining*. Horwood Publishing.

Wikipedia contributors. (2018, September 18). Machine learning. In *Wikipedia, The Free Encyclopedia*. Retrieved 09:16, September 20, 2018, from https://en.wikipedia.org/w/index.php?title=Machine_learning&oldid=860184347

Faggella D. (2018, September 16.) *What is Machine Learning?*. Retrieved 19.september 2018, from <https://www.techemergence.com/what-is-machine-learning/>

McLeod, R., & Schell, G. P. (2007). *Management information systems*. USA: Pearson/Prentice Hall.

Cummings, M., 2004. Automation bias in intelligent time critical decision support systems, in: AIAA 1st Intelligent Systems Technical Conference. p. 6313.