**Artificial Intelligence**

When Machine Becomes Man

Artificial Intelligence (AI) is the intelligence demonstrated by machines. It’s an academic discipline that started back in 1956 by Allen Newell and Herbert Simon. They developed a problem-solving theory implemented as a computer program. But it failed in one aspect. Humans didn’t use the same control process as the program. They revised the theory with their new knowledge of human control processes during problem solving. Their new program, the General Problem Solver (GPS), turned out to be way more efficient than its predecessor. The two of them won the 1975 A.M Turing Award for their “*basis contributions to artificial intelligence, the psychology of human cognition, and list processing.*” (Dennis 2018) The field of AI is built upon the idea that human intelligence can be so precisely described that a machine could simulate it. AI stems from problem-solving, and it is supposed to be something that would be more efficient at problem-solving than a human mind would. It would be more efficient and not make human mistakes. In a way you could say that AI strives to be the perfect human. But is there a point where machine stops being a machine and becomes a man itself? The line between man and machine is becoming blurry and more people start to question whether it is a good idea to even keep developing AI in a way, that they could one day replace humans. Should we then start treating them as we treat each other?

My paper will examine questions like these and specifically focus on the subject of human-like robots and what their role in our society might be. There are many aspects in this topic; would they replace human workers and cause unemployment? Would they need rights like we do? Ethical and philosophical questions like these are the cause of discussion in the field of AI.

I plan on using a lot of different sources to get the whole picture. I want to establish what is AI? To do this I’m going to use the article *NoSQL: The Shifting Materialities of Database Technology* by Paul Dourish. This will explore the materiality of software and databases. When talking about intelligent robots, we are speaking of the materialization of something digital, in this case databases, and as Dourish says himself: "*[…] the digital is always, inherently, and inescapably material […]*" (Dourish 2014, 3) and I will look further at the materiality of digital information. AI is a database, storing information on about people, their behavior etc. I will also use the chapter “Language” in Matthew Fullers *Software Studies* written by Florian Cramer. This will help me understand artificial language better and look at the distinction between artificial language and so called natural language, which Cramer also shines a light on. "*There is nothing 'natural' about spoken language; it is a cultural construct and this just as 'artificial' as any formal machine control language.*" (Cramer 2008, 168). Another interesting quote from the chapter that is worth noting in the AI context. “*Writing in a computer programming language is phrasing instructions for an utter idiot.*” (ibid, 171) The utter idiot being artificial intelligence.

There is also another question regarding AI – usefulness versus enjoyment. Regarding the useful side of AI, I will look further into AI in work environments. People have wondered whether robots would cause large unemployment as they replace human workers. Martin Ford's book "Rise of the Robots" discusses the different questions of the threat of a jobless future. Ford is an entrepreneur in Silicon Valley who believe that AI is a threat of a jobless future. But every coin has two sides. PwC is one of the world's largest professional services based in London and in February of 2018 they released the report "Will robots really steal our jobs?" Here they show some of the company's data that shows that human workers should not fear for their jobs or see AI as a threat. (Berriman, Hawksworth and Goel 2018) As of enjoyment Andrew Goffey's chapter “Technology, Logistics and Logic: Rethinking of Fun in Software” from Olga Goriunova’s *Fun and Software* touches upon this topic and talk how AI is somewhere in between. "*It is thus important that one at least acknowledges that the 'useful' is not the only way in which to frame an understanding of technology, any more than is 'imitating' nature. […] as the example of AI suggests, in practice, it is exceedingly difficuly to make clear-cut distinctions between the useful and the enjoyable.*" (Goffey 2014, 27). The before mentioned human-like AI are all given a hint of human personality and can understand jokes. Suddenly AI can also be fun and enjoyable and not restricted to being logical and efficient.

I will also try to look at the general public's view on AI. Most people know of AI in pop culture, as it is represented a lot in movies as *Ex Machine* (2014), *I, Robot* (2004) and the *Terminator*-franchise (1984-). In these movies AI are an unknown enemy, who tries to wipe out humanity. I would like to see how much movies with a view on AI as the enemy affects their own standpoint. On the other end of the spectrum there are movies such as Disney's *Big Hero 6* (2014), Spielberg's *Artificial Intelligence: AI* (2001) and even the HBO show *Westworld* (2016-) which all challenge the view on AI as the enemy. Especially the latter, who is raising many of the previously mentioned philosophical questions regarding AI and their humanity.

In the last couple of years AI hasn't only caught the public eye through pop culture. Tesla CEO Elon Musk and famous physicist Stephen Hawking have both expressed concern regarding AI and the direction it's headed – especially so-called killer robots which could be used for warfare. Scientists have also said there should be a ban on these (Sample 2017). But AI may not just be used for malicious purpose. In the fall of 2017 Hanson Robotics, a Hong Kong-based robotics company, presented their robot Sophia (Hanson Robotics 2017). She is supposed to be intelligent enough to solve problems too complex for the human mind, as stated on their site: "*As an extension of human intelligence, Hanson Robotics' genius machines can evolve to solve world problems too complex for humans to solve themselves*." (ibid) She is aware that she is a machine created to help humans. The personification of AI is not something strange to see even in our homes. Amazon's cloud-based voice service called Alexa (Amazon n.d.) has a distinct voice and can even come up with witty comebacks, making her more human-like. This could also lead to a discussion to why AI made to serve humans are most commonly referred to as a she, including Apple's Siri.

I will finish the paper with a discussion about robophilosophy - the philosophy of, for and by social robotics. This is a new area created by the Research Unit for Robophilosophy at Aarhus University (Aarhus University 2017). It will open the discussion on robots’ place in our world and what roles they could play in our society and that way, I will sum up the paper and tie all loose ends together; this includes the comparison of humans and robots, where the line goes between man and machine.

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