

# IN5480 Individual assignment fall 2021

*Updated: 25<sup>th</sup> August 2021*

In this course, there are three deliveries for the individual assignment. The first is after module 1, the second after module 2 and the third after module 3. Think of this as one document that will evolve and be updated through three iterations.

You are invited to write and draw for this individual assignment. You are further invited to discuss, present, talk about this assignment in your group and in class. You will hand in individual assignments.

## 1 First module - and first iteration

For the individual assignment in module 1, there are three topics:

### Human Robot Interaction

- • Concepts, definitions and history of interaction with AI.
- • Human Robot Interaction.
- • Universal Design and Interaction with AI.
- Below, the writing task for these three topics is described.
- 1.1 Concepts, definition and history of AI and interaction with AI
- **First, write a section about how AI came about, the history of AI. When, and by whom, was the term first used?**

The history below is based on a youtube video called “A Brief History of Artificial Intelligence”

1950 Alan Turing proposed The Turing Test. That same year Isaak Asimov proposed the three laws of robotics. In 1951 the first AI based program was written.

In 1955 the first self learning gameplaying program was created.

“The first coordinated AI research at MIT began in 1959 when John McCarthy and Marvin Minsky founded the Artificial Intelligence Project as part of both the Research Laboratory for Electronics (RLE) in Building 26 and the Computation Center”.(Knights)

In 1961 the first robot is introduced to the gms assembly line. In 1964 the first demo of an AI program that understands natural language is created. In 1965 The first chat bot Alaysa was invented. In 1974 the first autonomous vehicle is created at Standford AI lab. In 1989 Carnegie Melon creates the first autonomous vehicle using a neural network. In 1997 IBM deep blue beats Garry Kasparov in chess. In 1999 Sony introduces Ibo. That same year the MITs AI labs first emotional AI is demonstrated. In 2004, Darpa introduces the first atonemous vehicle challenge. In 2009 google starts building a self driving car. In 2010 Narrative Science´s AI demonstrates the ability to write reports. In 2011 IBM Watson beats Jeapordy champions. That same year Siri, Google Now and Cortana becomes mainstream. In 2015 Elon Musk and others invests a billion dollars to open AI. In 2016 Google´s deep mind defeats Korean Alfa Go Champion. In 2016 Stanford issues the AI 100 report. In 2016 UC Berkley Launces the centre for human compatible artificial intelligence.(“A Brief History of Artificial Intelligence”)

- **Then, find three different definitions of AI. Describe and explain these three definitions, for example by when it was defined, by whom and in what community. Based on these three definitions, make one definition yourself - and describe and explain your definition.**

“The term artificial intelligence was first coined by **John McCarthy** in 1956 when he held the first academic conference on the subject.” (4:2006 Smith)

“Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind. (Artificial Intelligence(AI))

“the capacity of a computer, robot, or other programmed mechanical device to perform operations and tasks analogous to learning and decision making in humans, as speech recognition or question answering.”(dictionary.com)

My personal definition is that whenever a computer acts like a human or animal of the natural world we call that AI.”

- **Select one of the articles from the curriculum. Write a brief review from this article. If there is something that is unclear, or you disagree with, or that you question with the article – write about this.**

### **Social Media as a Platform for Participatory Design**

This is an old article who´s talking about social media as a new arena for participation. The main goal was to find solutions for practical issues for designers conducting Participatory design(PD) online. They wanted to create a workshop for practicing Participatory Design on Facebook.

“..knowledge of skilled workers (and/or users) makes important contributions to design processes.” (L.F.M Reyes, S. Finken)

With this in mind they went on to study the effects of participatory design on Social media. When the article was written Social Media was a new phenomenon. There was three papers they studied that show the relevance of joining together SM and PD that they took further notice with.

About the first paper by Näkki et al. (2008) they say “The authors state that participation is made easier for users when it happens through the Internet because it gives them a possibility to participate whenever they prefer. However, participating online can lead to a feeling of missing community and profile picture and full name may help with this sense of missing community was the conclusion that was drawn. Ross et al.(2009) was focusing on how social media is is being used to maintain already established relationships and to form new ones. Design emerges from the ways the tools are used differently.

A workshop was launched in the winter of 2011 about exploring Social media as a platform for Participatory Design.

The basic principle is to give people a right to influence decisions in their workplace.

“To make the FB environment a suitable platform for this mix of distributed engagement, participants were gathered in a private FB group (set up by the first author) restricted to invited members only. In this space their differences could intersect while the methods’ three phases and topics carried the potential for creativity.” (L.F.M Reyes, S. Finken)

They found that “SM made it possible to create a heterogeneous composition of people on their common interest.” (L.F.M Reyes, S. Finken)

- **Find one contemporary company that work with AI and describe how this company present AI on their web pages. In what way does this company talk about AI, as a product, as a service, framework or as a “idea”?**

Tesla writes on their Norwegian webpage:

“We develop and distribute autonomi in large scale for use in cars, robots and more. We believe that an approach based on advanced AI for vision in planning, supported by effective use of inference hardware, is the only way to reach a solution that gives pure self driving and more. “(Tesla). They also talk about it as a product called inference hardware.

We can get from what they’re writing that the idea is still under development and something we will see more of in the future. They’re still reaching the solution. Tesla is campaigning that they are focusing on Artificial Intelligence and Auto Pilot. Tesla is developing a product called Silisium Chips that is running the software from the bottom.

Tesla is also working on a neural network

- **Select one documentary or a fictional film, book or game that is about the use of AI and interaction between people and AI. Describe with your own word how human interaction with AI is portrayed in this work.”**

I just recently saw a film about a girl who was raised by a mother who was a robot. The rest of the human beings were gone and the girl was alone with this robot. It was a very advanced robot that could do many practical things that only human beings could do. What? It had a very high intelligence and somehow

managed to raise the child. It was definitely a futuristic movie and a robot and we don't know if we're ever going to need a robot exactly like that. Or if we are going to be able to make it. Most of the film is based on how this girl interacts with the robot. The design of the robot didn't look like they had been trying to make it look like a human, but it was looking very boxy and robotic. The voice was that of a human woman when the robot talked. The girl was very obedient to the robot. The People who programmed the robot seemed like that they had done a good job in assimilating a mother. But as old style robots; it was hard and metallic. The robot mother would provide for her whatever she needed as she grew up. There had been an apocalyptic collapse on the earth so the robot and the girl were hidden in a hi-tech basement where the robot would do all the regular chores a mother does for a child like cleaning, cooking, teaching, etc. It seemed like a loving relationship.

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## **Human Robot Interaction.**

### **Universal Design and Interaction with AI.**

“Artificial intelligence is **the simulation of human intelligence processes by machines**, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.”

(Burns, E. Laskowski, N. Tucci, N)

Human-robot interaction is the **study of interactions between humans and robots**. It is often referred as HRI by researchers. Human-robot interaction is a multidisciplinary field with contributions from human-computer interaction, artificial intelligence, robotics, natural language understanding, design, and psychology.

<https://www.britannica.com/technology/artificial-intelligence>

- **1.2 Robots and AI systems**

**First, write a section about how the word Robot came about.**

The word robot was first introduced through the Czech playwright “Rossum’s Universal Robots”. Novelist and journalist Karel Capek(1880-1938) wrote the play. “*Robot* is drawn from an old Church Slavonic word, *robota*, for “servitude,” “forced labor” or “drudgery.”(The Origin of the Word Robot)

- **Then, find two different definitions of “robot”. Describe and explain these definitions. Based on these definitions, make one definition yourself, and describe and explain this definition.**

Below are two different definitions of the word “robot”

*“noun*

a machine that resembles a human and does mechanical, routine tasks on command.”  
(dictionary.com)

“a person who acts and responds in a mechanical, routine manner, usually subject to another’s will; automaton.”(dictionary.com)

Another way is to describe it as a mechanical slave mimicking human behaviour in the way it was created to do it.

- **Discuss the relation between AI and Robots. Is “a robot” different from “an AI”? In what ways are they different and similar? Bring in the definitions that you described earlier about robots and AI for this discussion.**

AI(artificial intelligence) is the intelligence of the system or the robot. This is a type of intelligence which is programmed, created and controlled by human beings. Without AI it is questionable if we can call a robot for a robot because artificial intelligence is a key factor in making robots more successful in imitating human behavior having their own intelligence.

The robot is just a machine that resembles a human and does mechanical, routine tasks on command.” (dictionary.com), but the software that makes it possible for the machine to receive commands and make actions on them is the AI.

- **Find one contemporary physical robot, either described in a research article - or a commercial robot, and describe how this robot moves and how a human user is interacting and using the robot in a specific situation.**

The robot Sofia can interact with humans and have her own opinions on for example crypto currency. She has lately also received new legs so she can walk. She will in the future be able to for example run up stairs in interact in a human environment.

### 1.3 Universal Design and AI systems

- **Please find and describe a definition of Universal Design. Explain this definition and how you understand what Universal Design is about with respect to inclusion.**

Universal design is about making content available for everyone. There are several ways one may do this. One is to keep the contrast between letters and backgrounds to a minimum. There are specific contrast requirements mentioned in the WCAG. There is also mandatory to have for example web pages that can be heard by blind people and that may be controlled by speaking. Including people with a handycap or something else that requires extra help is one of the goals. On WCAGs website they have written:

“Following these guidelines will make content accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these. Following these guidelines will also often make your Web content more usable to users in general.”

- **Describe the potential of AI with respect to human perception, human movement and human cognition/emotions. You are encouraged to use examples. Please provide two examples of AI systems for including “more” users.**

The robot Sofia has the ability to express a great variety of emotions with her face. She is maybe the most human like robot in the world. With AI making robots so much like humans, they may be good in the future for practicing socializing or maybe even for people who needs company and are lonely. There are also surfacing acrobatic robots that are very athletic and know how to for example jump and do flips etc. In the future robots like this can be used within sports. Maybe there will be for example football matches with robot teams etc. Robots may also be used as weapons and soldiers .

- **Describe the potential of AI for both including and excluding people. You are encouraged to use examples.**

The first thing that comes to mind when it’s about AI excluding people I think about how AI is not so available to masses yet. For the most part advanced AI is only available for developers, so this may exclude most people. However, as advanced AI becomes more available, more people will get their hands on it and will be able to explore it. What we know about the robot Sofia for example is strictly from online articles and videos and most of us haven’t yet have the possibility to meet a robot like that.

**In the WCAG 2.1 principles and in many of the Human AI-Interaction guidelines the concept “understand” and “understanding” is used. Explain briefly in what way you make sense of the concept “understand” and “understanding”. Then address the question: Do machines understand?**

Will answer this in a later iteration

**You find the WCAG 2.1 principles here:**

<https://www.w3.org/TR/WCAG21/>

For inspiration – please have a look at these three projects:

[Kunstig intelligens og sensorteknologi Lek og lær UD\(X\)=?](#)

## 1.4 Guideline for Human-AI interaction

- **Please select one of the 18 guidelines for human-AI interaction from Microsoft, and describe this guideline with a different example than what is given by Microsoft.**

Below is the nr. 1 guideline for human – AI interaction from Microsoft.

“Make Clear what the system can do, and help the user understand what the AI system is capable of doing.

Example: when interacting with Siri on Apple Iphone, she suggests things you may ask her for as written text on the phone.

- **Search, and find one set of HCI design guidelines. Discuss briefly similarities and differences between the HCI design guidelines and the Human-AI interaction guidelines.**

Will do this task for the next iteration

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You find the Microsoft guidelines for human ai interaction here:

<https://www.microsoft.com/en-us/research/blog/guidelines-for-human-ai-interaction-design/>

## 1.5 Practical information

Date of delivery: Se calendar on the course page.

We use the Vortex system for the deliveries. More information will be given on how to upload. PDF format is to be used. Name your document: “username” iteration 1.

Think of a reader when you write; the reader is a fellow student, and Asbjørn, Trenton, Claudia, Jo.

Language: Of your choice, English or Norwegian.

Maximum number of pages: 6

Make references to articles: Minimum 4.

## Feedback

Feedback to another student is to be given *one week after the delivery deadline*.

Use the "two stars and a wish" structure for the feedback. Try to be specific about what you like – and why. In addition to what you think can be improved.

## What to “do” with the feedback?

In the next iteration of the individual assignment, make an appendix where you first describe the feedback you have received – and then describe what you have done with the feedback that you received. Try to be specific about what you have done with the feedback.

*Happy writing!*

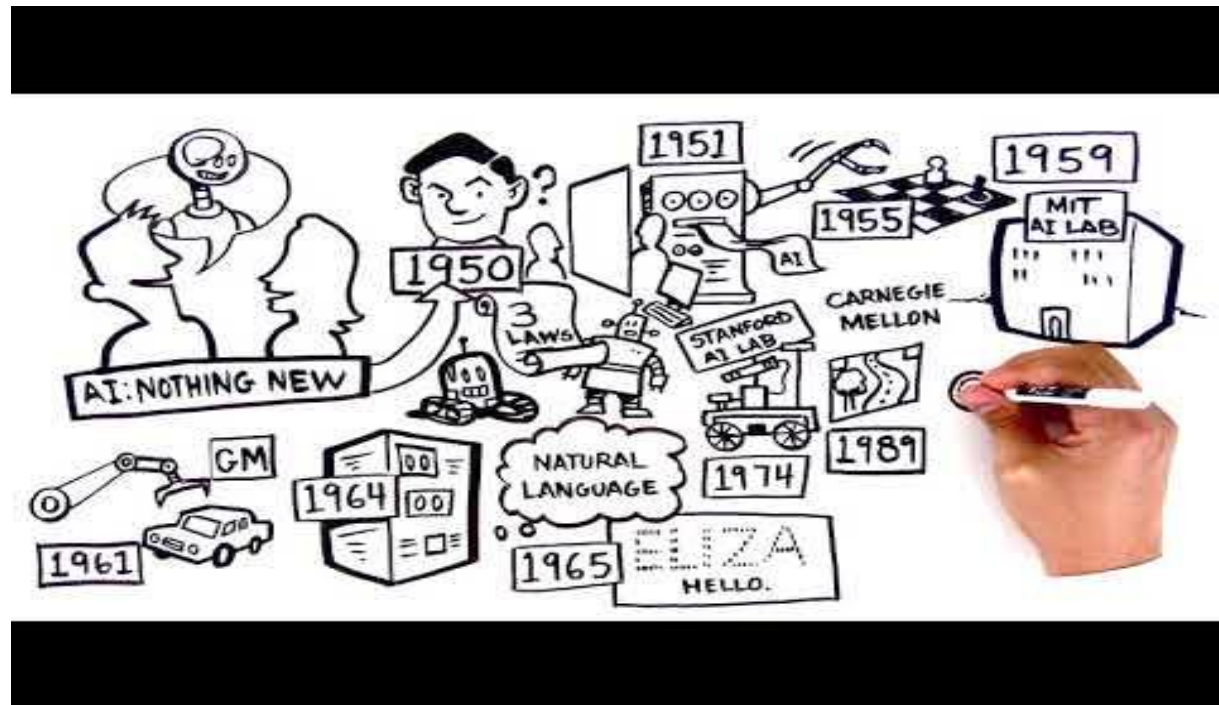
## Resources

Knight, Heather. August 2006. Early Artificial Intelligence Projects - A Students Perspective

(<https://projects.csail.mit.edu/films/aifilms/AIFilms.html>)

A Breif History of Artificial Intelligence

[A Brief History of Artificial Intelligence](#)





Smith, Chris. December 2006. The History of Artificial Intelligence

<https://courses.cs.washington.edu/courses/csep590/06au/projects/history-ai.pdf>

IBM Cloud Education - Artificial Intelligence(AI)

“<https://www.ibm.com/cloud/learn/what-is-artificial-intelligence>”

Dictionary.com. Artificial Intelligence. <https://www.dictionary.com/browse/artificial-intelligence>

Finken, Sisse. F.M Reyes Lill - Social Media as a Platform for Participatory Design - [https://dl-acm-org.ezproxy.uio.no/doi/pdf/10.1145/2348144.2348173](https://dl.acm-org.ezproxy.uio.no/doi/pdf/10.1145/2348144.2348173)

Burns, E. Laskowski, N. Tucci, N - What Is Artificial Intelligence?

<https://searchenterpriseai.techtarget.com/definition/AI-Artificial-Intelligence>

The Origin of the Word Robot - <https://www.sciencefriday.com/segments/the-origin-of-the-word-robot/>

Guidelines for Human-AI Interaction

Amershi, S. Weld, D\*, Vorvoreanu, M. Fourney, A. Nushi, B. Collisson P. Suh, J. Iqbal, S. Paul N, B. Inkpen, K. Jaime, T. Kikin-Gil, R and Horvitz, E. 2019

<https://www.microsoft.com/en-us/research/uploads/prod/2019/01/Guidelines-for-Human-AI-Interaction-camera-ready.pdf>

Tesla – Kunstig intelligens og autopilot.

[https://www.tesla.com/no\\_NO/AI](https://www.tesla.com/no_NO/AI)

