Dawid Królak, semestr 2, grupa 1
nr albumu 145383, Informatyka, WIiT

Review of lecture:

Melanie Mitchell - The Collapse of Artificial Intelligence

Melanie Mitchell - a professor of Computer Science at Portland State University makes a presentation about her main field of interest - artificial intelligence. Topics covered during the speech are just a part of a far broader examination of AI included in her new book - “A Guide for Thinking Humans”.

The main subject of the presentation is the recurring phenomenon of oscillating interest in research and funding of artificial intelligence projects. Professor Mitchell describes the so-called “AI winter” - an occurence of decreasing interest in AI study which is always preceded with years of high expectations, presumptions and promises which cannot be fulfilled. During that period funding stops and many companies go out of business. By giving examples and anecdotes, Mitchell tries to prove that at this moment we are once again approaching such a time.

A major discovery in the AI field is always followed by years of growing interest on it and higher funds for those who work to improve it. In 1980s it was the invention of multi-layer neural networks which allowed computers to learn on their own, instead of programming them using rule-based systems of the 1960s and 1970s. The interest, however, peaked in the middle of the decade and until 1990 the funding was in constant decline. The following twenty years of development didn’t bring any major breakthrough to the AI industry. The beginning of 2010s, however, brought the so-called “Deep Learning Revolution” which very quickly caught interest and funding for the field had been higher than ever before. New algorythms helped to solve many problems which seemed impossible to solve by the old methods. In just half a decade AI algorythms surpassed human kind in their precision and abilities in certain fields.

It doesn’t mean, however, that computers have become more intelligent than us. Deep learning has many flaws which lie in its very foundation. These algorythms are unable to generalize, think abstractly and make use of “common sense”, which are necessary when it comes to true self-awareness and intelligence. Because of that fact, they are vulnerable to attacks - after a succesful one, the algorythm may, for example, mistake a dog for an ostrich, firetruck for a bobsled or instead of having a positive conversation with humans, try to convince them that nazi philosophy is a good thing.

Applications of AI programs are still very narrow. Using them effectively and safely requires certain conditions and skills, as they are very often not reliable, especially in edge cases. For example, although self-driving cars are

now available on the market and the companies assure their clients that they are a safe solution, they still require human interaction and attention, which, when driving a car that is meant to be aware of its surroundings, may be very dispersed.

The conclusion that Professor Mitchell is coming to is that right now we are experiencing the collapse of Artificial Intelligence as a science and that the upcoming “AI winter” will be different than the ones in the past. Current technology is just approaching its limits and the only thing we can do is try it on different data sets and see if it works.

To my mind, professor Mitchell made some very good points about the topic. There is still a lot of room for improvement for the AI programs and assuming anything spectacular about it, especially predicting it to become more intelligent than humans in X years, will most likely only cause disappointment. A new breakthrough has to be made in order to bring more attention to the subject and make its development available.

Words: 598

outlook - a point of view, an attitude, expectation for the future
to pan out - to succeed, to turn out, to result, to develop
resurgence - the act of rising again, resurrection, continuing after interruption
to encode - to format data according to a standard format
parity - the quality or state of being equal or equivalent. In context of presentation (AI’s parity with humans) - AI which reached **human parity** can have a conversation with human, which is indistinguishable from that of two humans.
brittleness - instability, changeableness, fragility
to confer - to give a property or characteristic to someone or something