

hcc[!] artificiële intelligentie



Artificial **I**ntelligence – **I**ntelligent **A**gents

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Wat is Artificiële Intelligentie

AI – Mogelijkheden

AI – Problemen

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Wat is Artificiële Intelligentie

Definitie(s)

(**A**rtificiële) **N**eurale **N**etwerken

neuron – perceptron

synapsen - gewichten

(REINFORCEMENT) LEREN

AUTONOMOUS INTELLIGENT AGENTS

Wat is Artificiële Intelligentie



WIKIPEDIA
De vrije encyclopedie

Kunstmatige intelligentie

(Doorverwezen vanaf [Artificiële intelligentie](#))

Kunstmatige intelligentie (KI) of **artificiële intelligentie** (AI) is de wetenschap die zich bezighoudt met het creëren van een [artefact](#) dat een vorm van intelligentie vertoont.

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WIKIPEDIA
The Free Encyclopedia

Artificial intelligence

From Wikipedia, the free encyclopedia

"AI" redirects here. For other uses, see [AI \(disambiguation\)](#) and [Artificial intelligence \(disambiguation\)](#).

Artificial intelligence (AI), sometimes called [machine intelligence](#), is [intelligence demonstrated](#) by [machines](#), in contrast to the **natural intelligence** displayed by humans and other animals.

In [computer science](#) AI research is defined as the study of "[intelligent agents](#)": **any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals**. 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".



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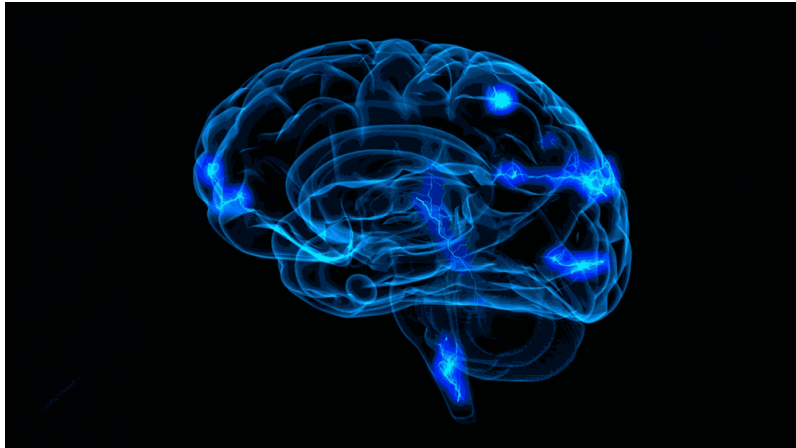
Intelligence

For the human faculty of thinking and understanding, see [Intellect](#). For human intelligence, see [Human intelligence](#).

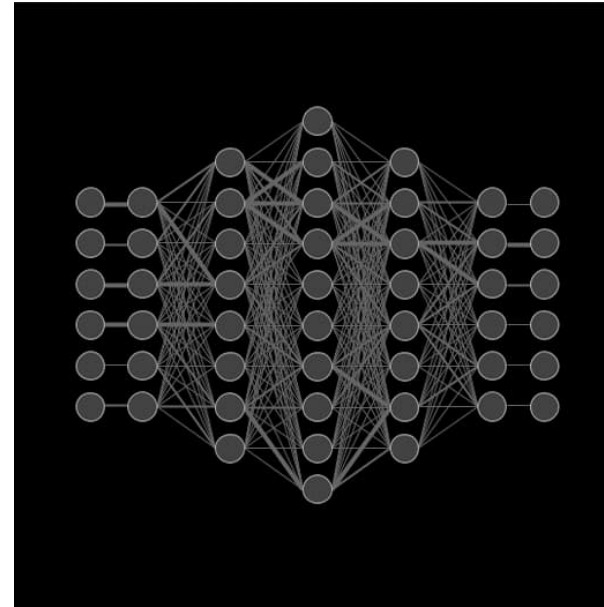
Intelligence has been *defined in many ways*, including: the capacity for logic, understanding, self-awareness, “learning”, emotional knowledge, reasoning, planning, creativity, and problem solving.

Intelligence is most often studied in humans but has also been observed in both non-human animals and in plants. Intelligence in machines is called artificial intelligence, which is commonly implemented in computer systems using programs and, sometimes, appropriate hardware.

(Artificiële) Neurale Netwerken

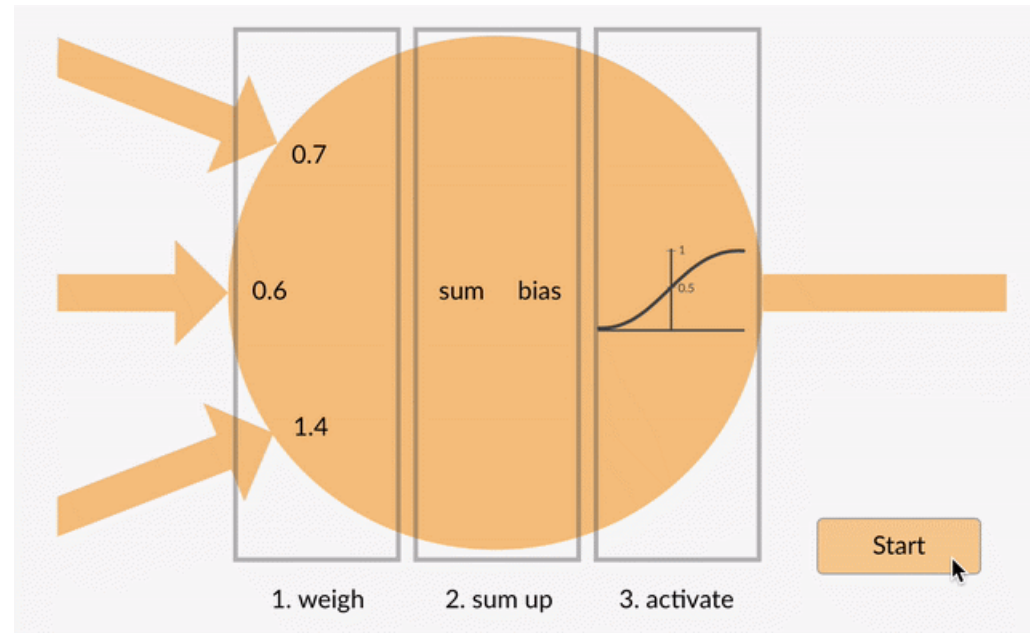
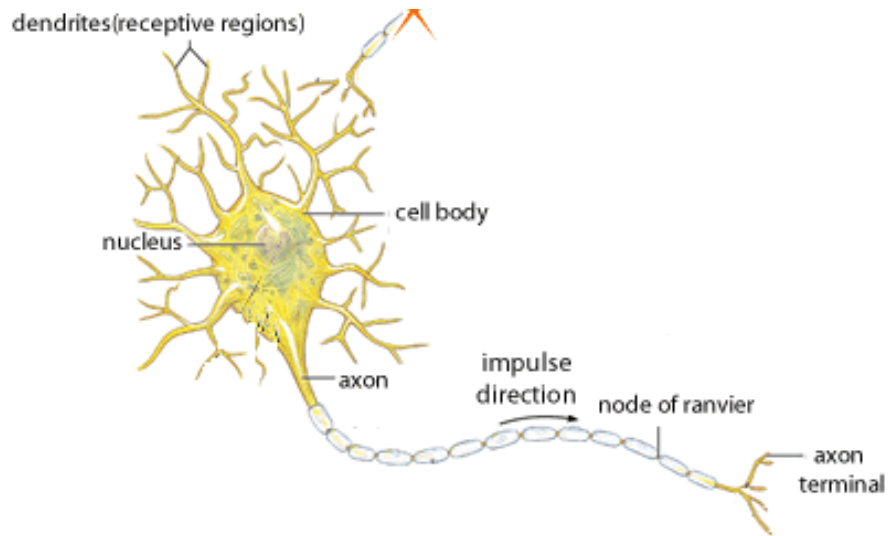


WETWARE

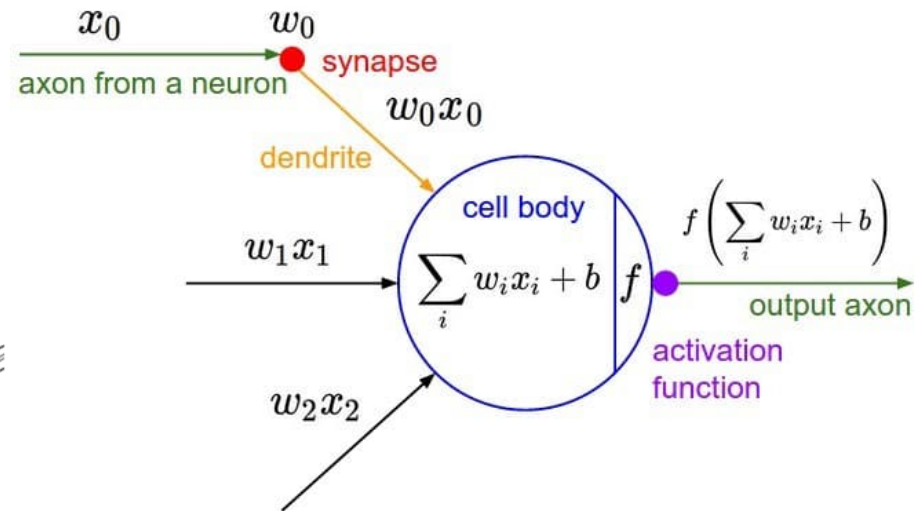
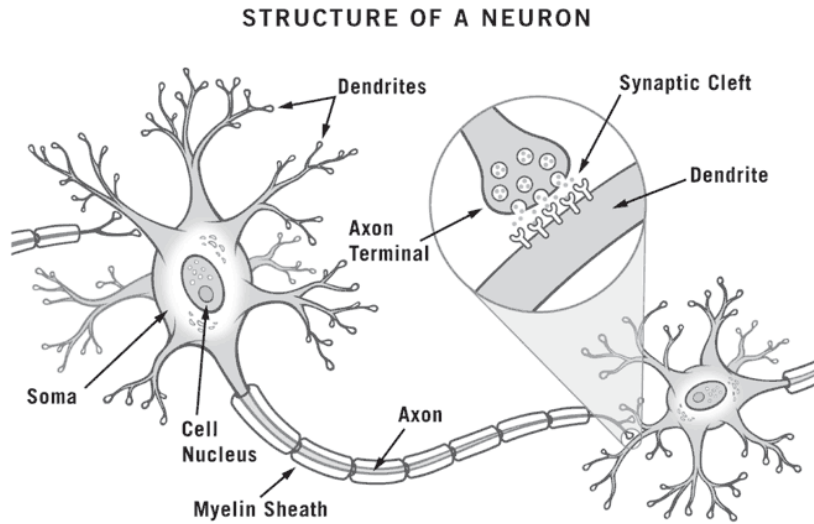


SOFTWARE

neuron – perceptron



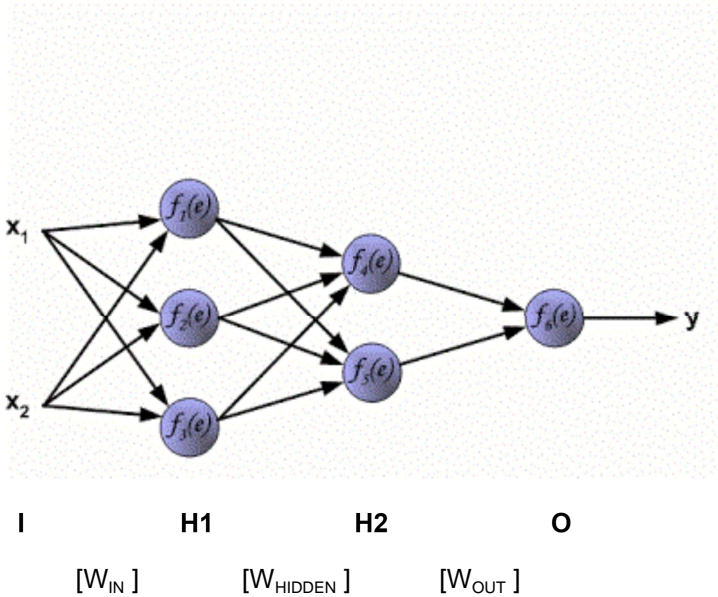
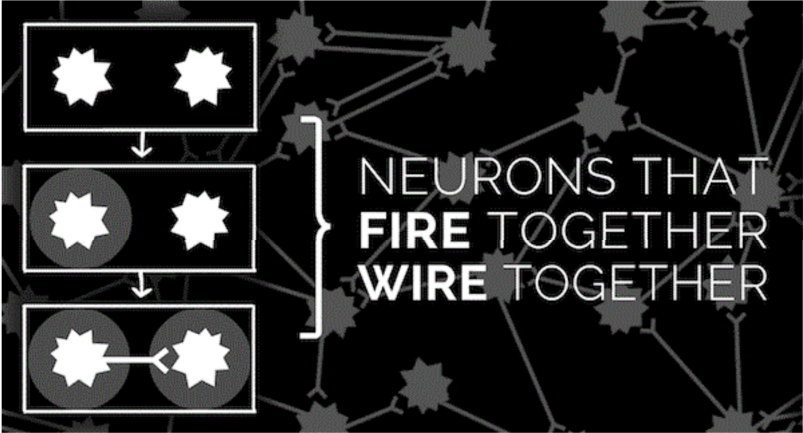
synapsen - gewichten



LEREN

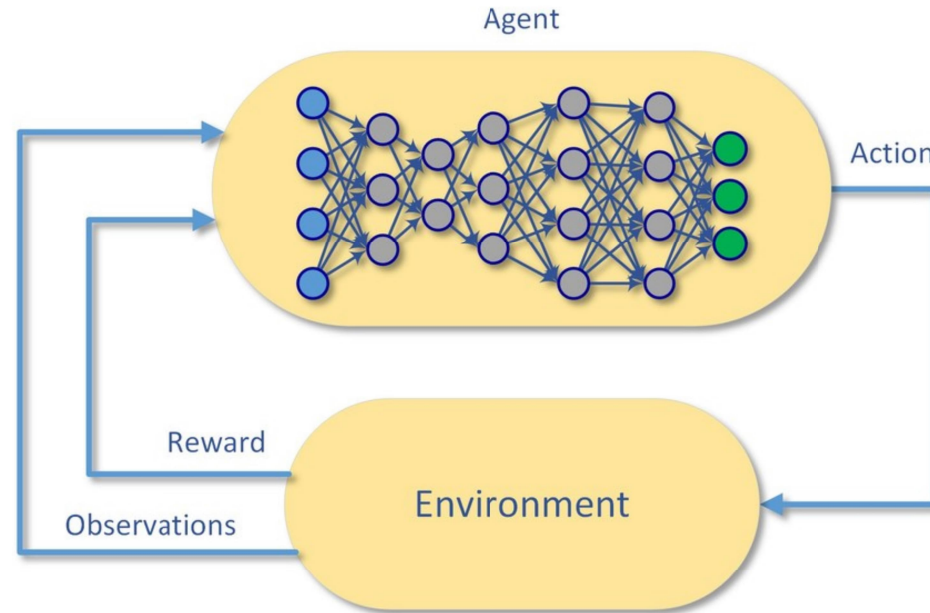
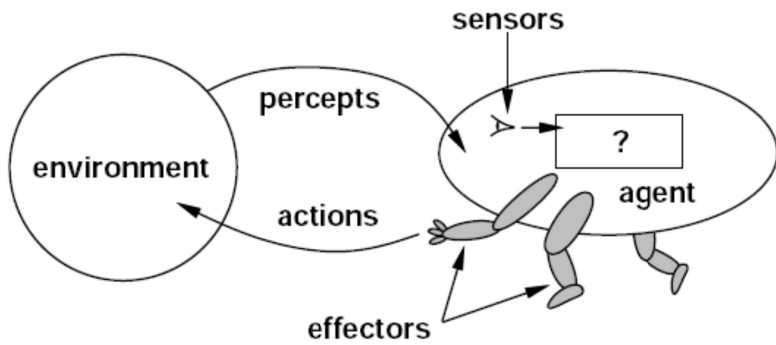
Hebb

Error Backpropagation

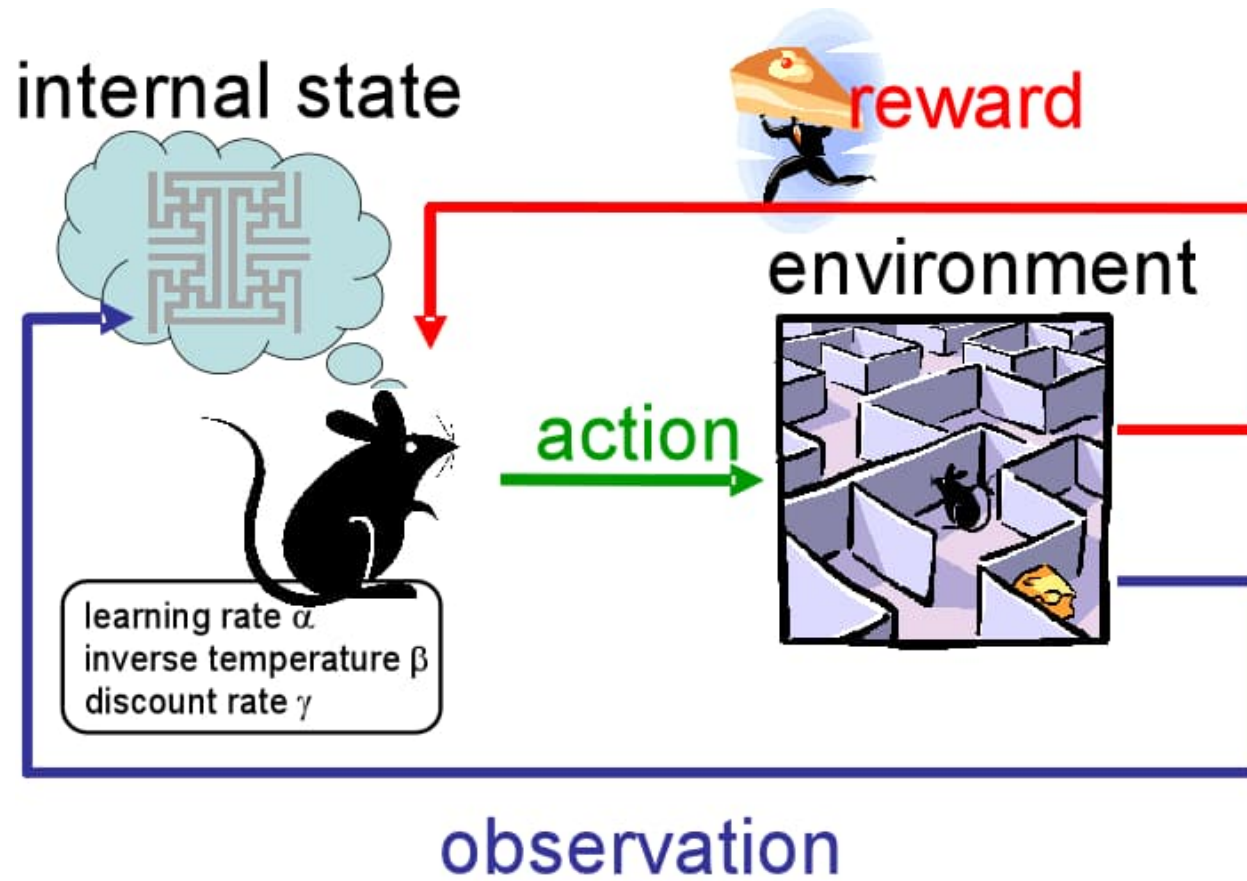


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ZELF LEREN – REINFORCEMENT LEARNING

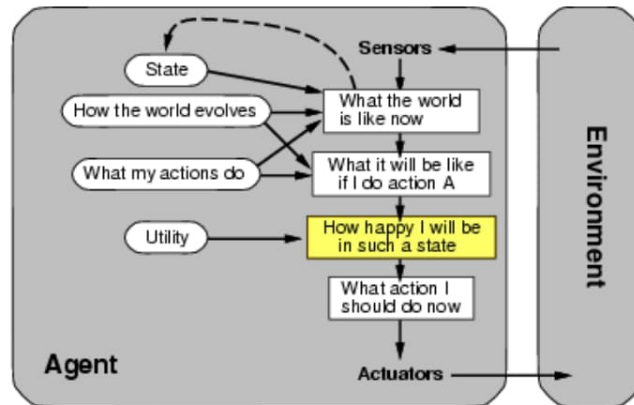


- *opvoeding*
- goed voorbeeld doet goed volgen
- door schade en schande wijs worden
- (delayed) *reward* en punishment
- pain and pleasure



AUTONOMOUS INTELLIGENT AGENTS

Utility-based agents



- Certain goals can be reached in different ways.
 - Some are better, have a higher utility.
- Utility function maps a (sequence of) state(s) onto a real number.
- Improves on goals:
 - **Selecting between conflicting goals**
 - Select appropriately between several goals based on likelihood of success.

Life, liberty and the pursuit of HAPPINESS

AI-mogelijkheden

Handschrift herkenning

wereldkampioen GO

wereldkampioen schaken

programmeren

gezichtsherkenning

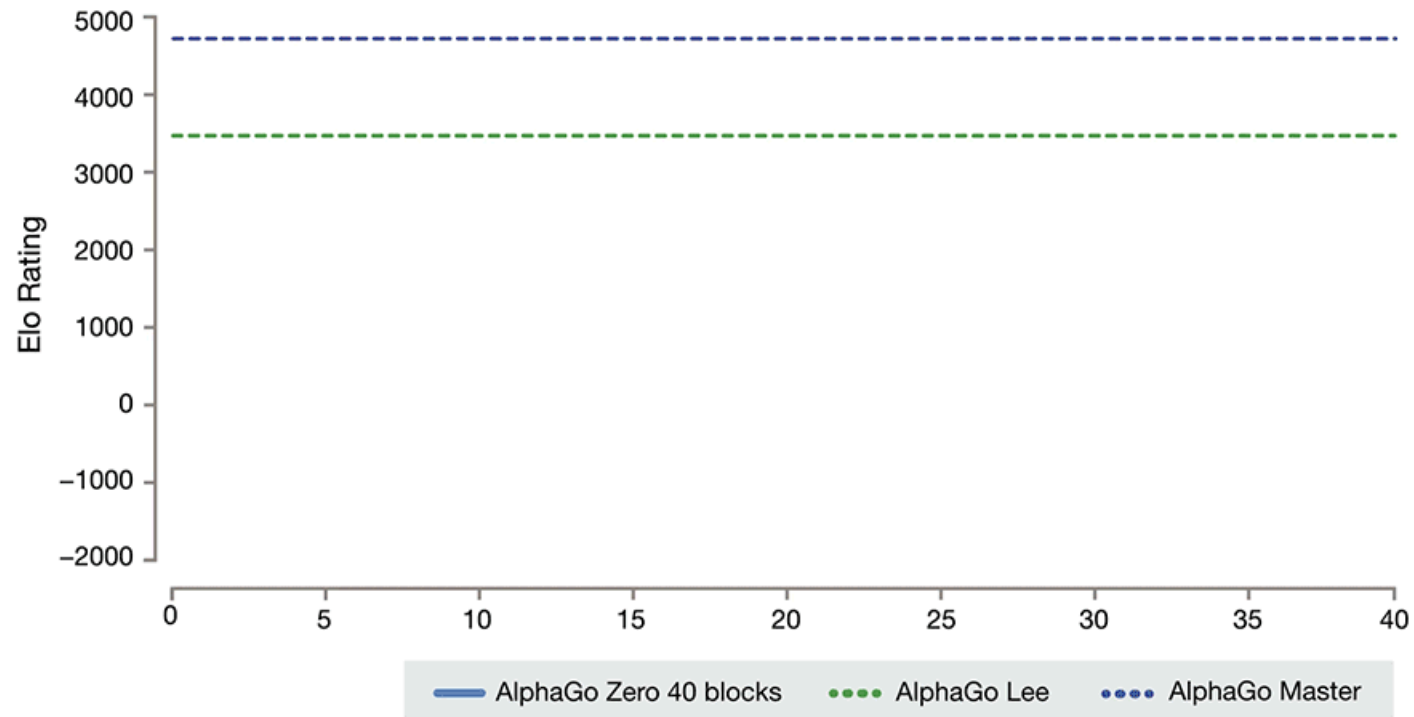
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Handschrift herkenning



AlphaGo Zero: Learning from scratch

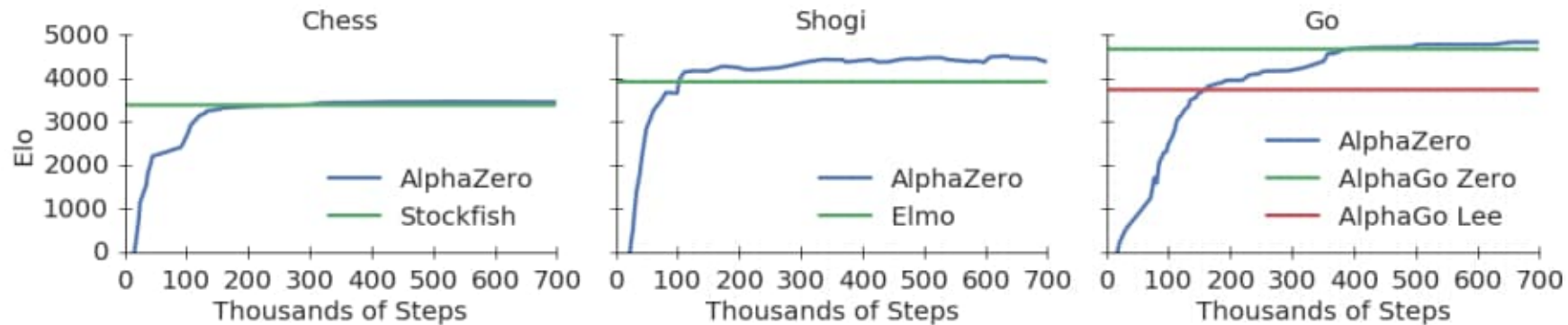


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The future is here – AlphaZero learns chess

“AlphaZero compensates for the lower number of evaluations by using its **deep neural network** to focus much more selectively on the most promising variations – arguably **a more “human-like”** approach to search, as originally proposed by Shannon.

In other words, instead of a hybrid brute-force approach, which has been the core of chess engines today, it went in a completely different direction, opting for an extremely selective search that **emulates how humans think**



DENKsporten

Cogito Ergo Sum (*Ik denk dus ik ben*)



AlphaZero AI

Another Crush!!



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Google's AI can create better machine-learning code than the researchers who made it

Google's [AutoML](#) system recently produced a series of machine-learning codes with higher rates of efficiency than those made by the researchers themselves. In this latest blow to human superiority the robot student has become the **self-replicating** master.

This isn't the beginning of **Skynet** or anything spooky like that, we're not on the verge of the **singularity (self-aware machines)**, but we are leaps closer to revealing AI's potential to accelerate the technology timeline.

Hiding behind your hands won't stop facial recognition software

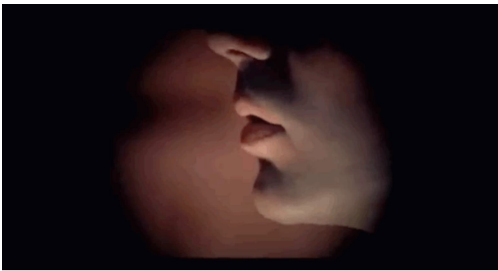


As evidenced by Apple's rumored plans to [replace Touch ID with facial recognition technology](#) for the iPhone 8, the ability of computers to seamlessly recognize faces is pretty darn impressive these days. Hands covering faces represents a significant challenge, due to how often a particularly animated hand gesture accidentally obscures a speaker's face. Fortunately, computer science researchers are here to help.

As the need for machines to be able to read our emotions grows (consider robot caregivers, [teachers](#), or even just smarter AI assistants like Alexa and Siri), solving problems like this is only going to become more important

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AI Lip Reading Better Than Human, Like HAL 9000



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AI – Problemen

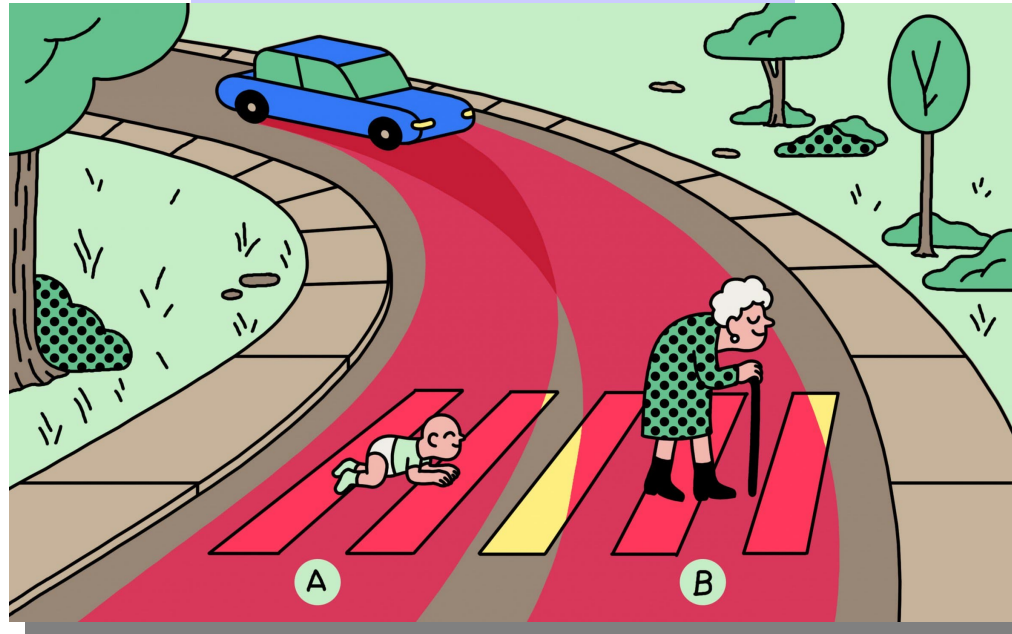
Moral Machines

Zelflerende robots krijgen brein in de cloud

Google and Oxford Are Working on an A.I. Kill Switch

Science or Fiction ?

Moral Machines



**Should a self-driving car kill the baby or the grandma?
Depends on where you're from.**

Zelflerende robots krijgen brein in de cloud

Europese wetenschappers hebben de eerste versie van een in de cloud geplaatst computerbrein voor robots vrijgegeven. [RoboEarth](#) maakt dat robots aangestuurd worden via de cloud.



Robots leren van elkaar

Wat wel bijzonder is is dat **de robots de mogelijkheid hebben de data die opgeslagen is in de cloud uit te breiden, te verrijken of te veranderen.** Daardoor worden bijvoorbeeld ervaringen gedeeld over eenzelfde taak uitgevoerd onder verschillende omstandigheden, in verschillende situaties op verschillende plekken in de wereld. De bedoeling daarvan is dat de robots zo 'leren' om te gaan met veranderende omstandigheden. De rekentaken die daarmee samenhangen worden via een snelle internetverbinding afgehandeld in de cloud

Google and Oxford Are Working on an A.I. Kill Switch That A.I. Won't Learn to Turn Off

We're not quite at the point where AI is equal to or better than humans just yet, but once we are, AI will be able to **improve on *itself*** even faster than we can, which makes it a difficult task to come up with a human-designed don't-murder-us button that won't immediately become obsolete if AI so chooses.

You'd need to make them what Google and Oxford University's aptly named *Future of Humanity Institute* call "**safely interruptible agents**"
—or, as they put it in layman's terms [in their paper](#): give AI a "**big red button.**"

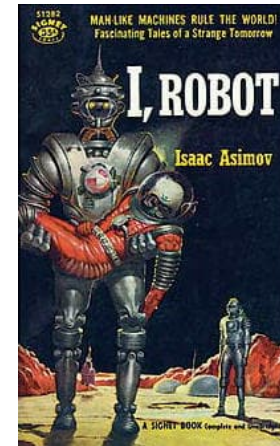


Science or Fiction ?

Isaac Asimov's "Three Laws of Robotics" (1942)

The three laws state that:

- 1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.**
- 2. A robot must obey any orders given to it by human beings, except where such orders would conflict with the First Law.**
- 3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.**

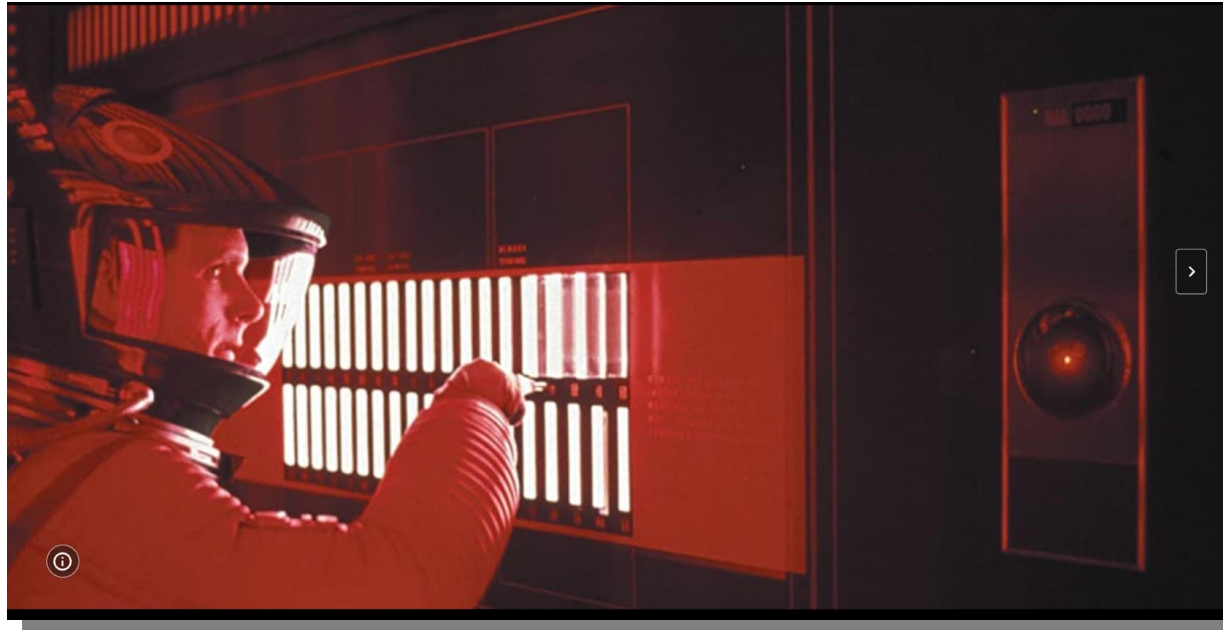


I'm sorry Dave, I'm afraid I can't do that



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Deactivating Hal 9000



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VRAGEN ?

