We Need to Talk, AI

A Comic Essay on Artificial Intelligence

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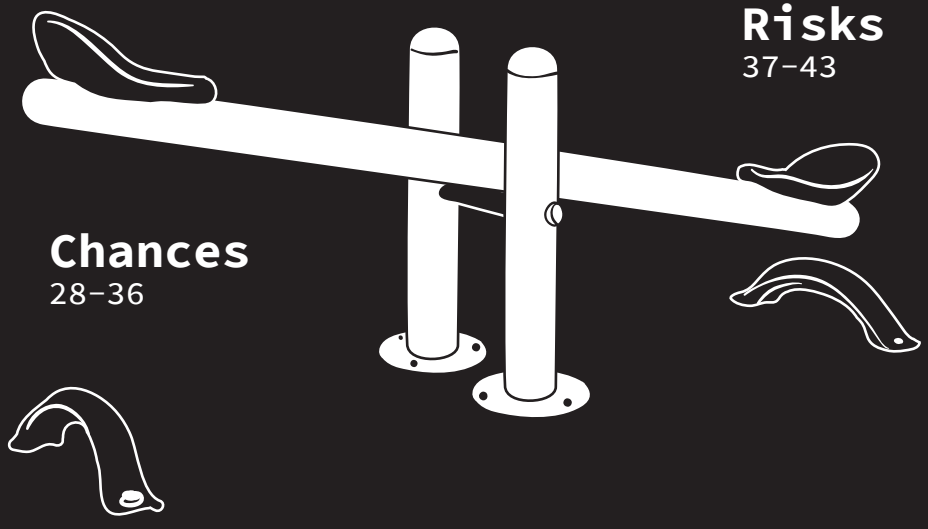
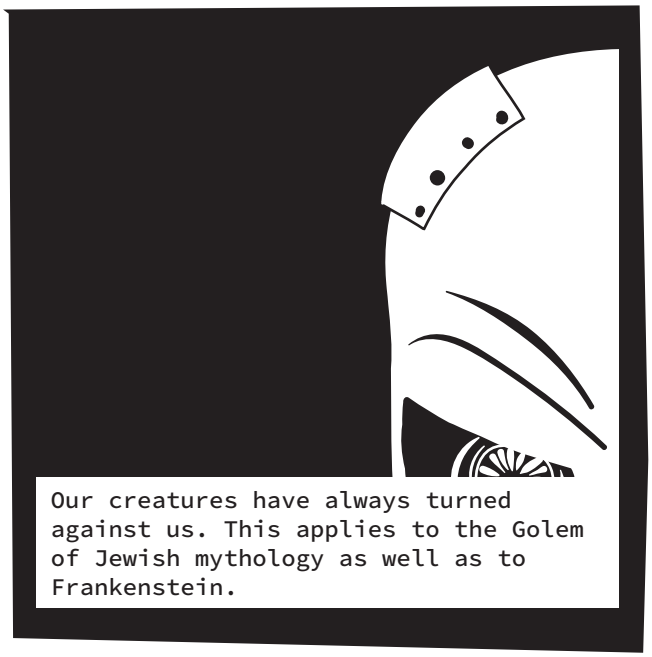
www.weneedtotalk.ai



//Knowing the future is impossible. But what we can do: Knowing what future we would like to have. And then work on it.

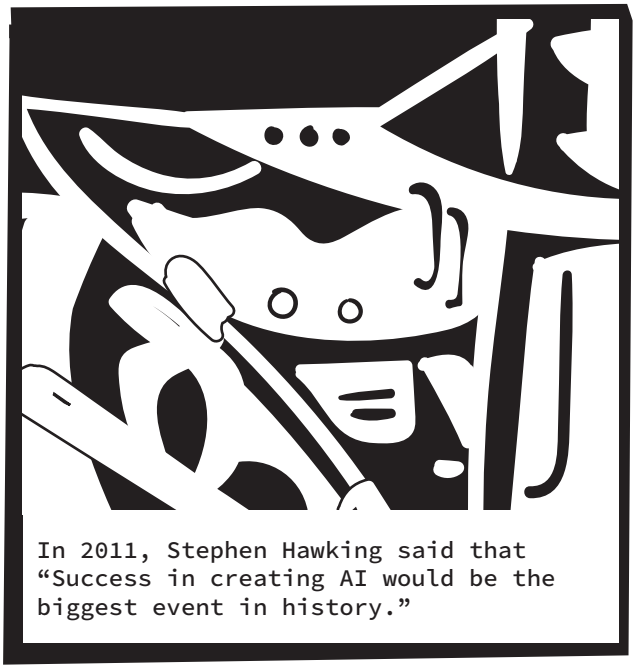


Our creatures have always turned against us. This applies to the Golem of Jewish mythology as well as to Frankenstein.

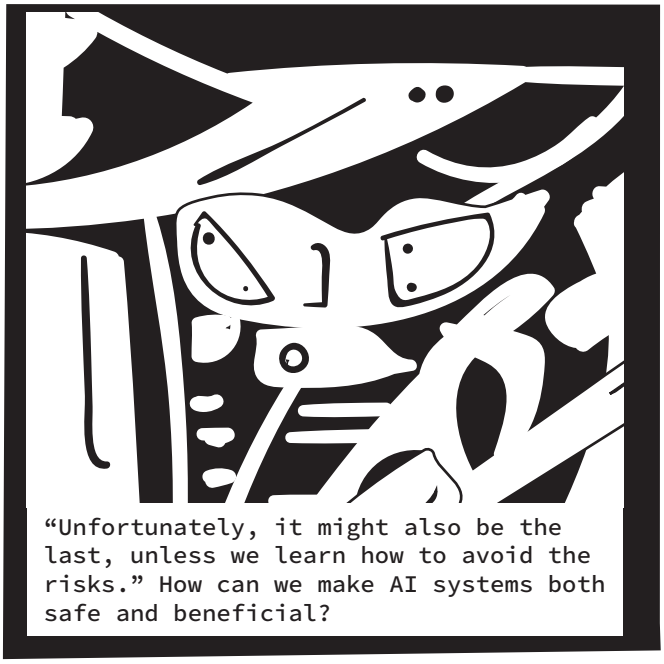
Neither magic nor natural sciences have ever helped to make artificial humans submissive and controllable.

Parents whose kids prefer to wear rubber boots instead of weather-proof sandals even when it‘s hot outside know that.

An AI Take-Over is a hypothetical scenario in which AI takes control of the planet - taking it away from us.

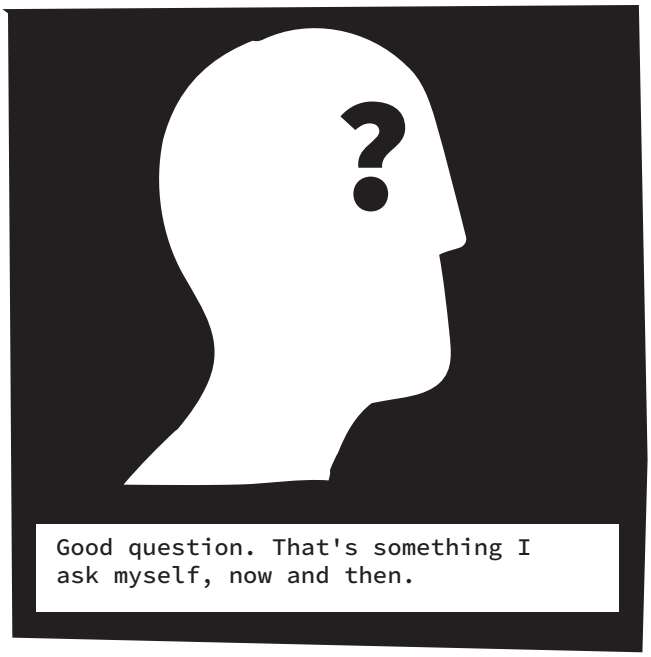


In 2011, Stephen Hawking said that “Success in creating AI would be the biggest event in history.”

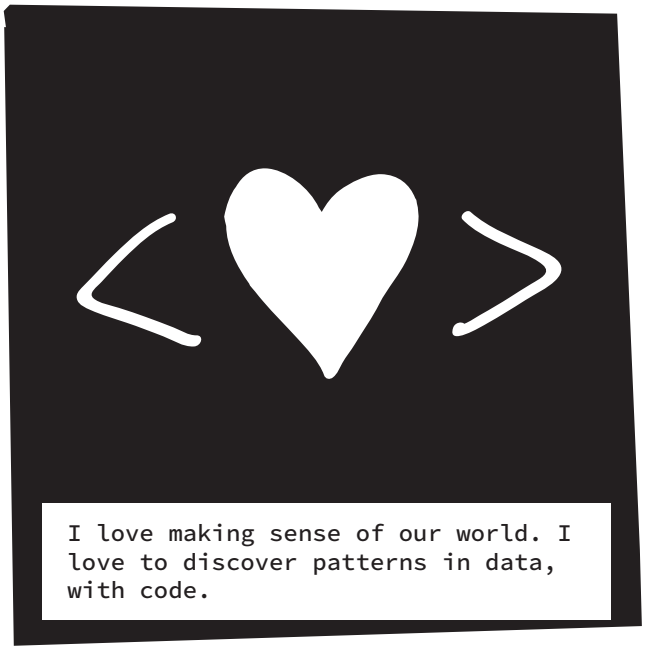


“Unfortunately, it might also be the last, unless we learn how to avoid the risks.” How can we make AI systems both safe and beneficial?

Who is Julia

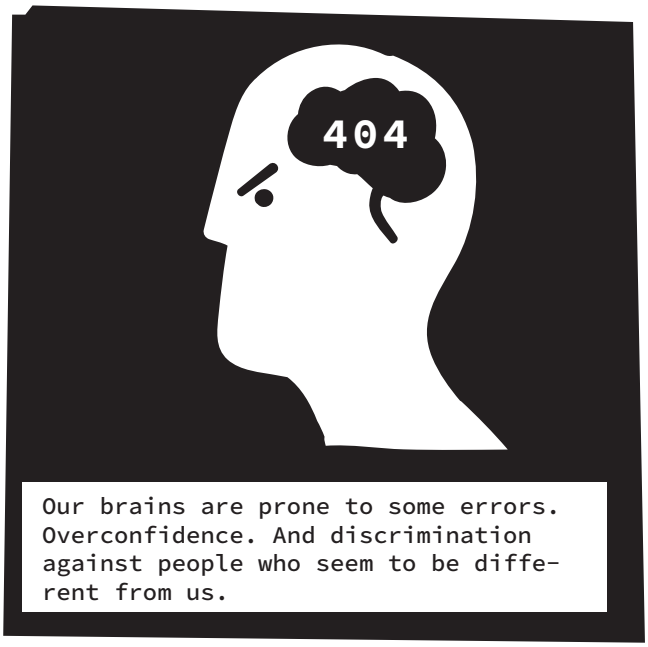


Good question. That's something I ask myself, now and then.

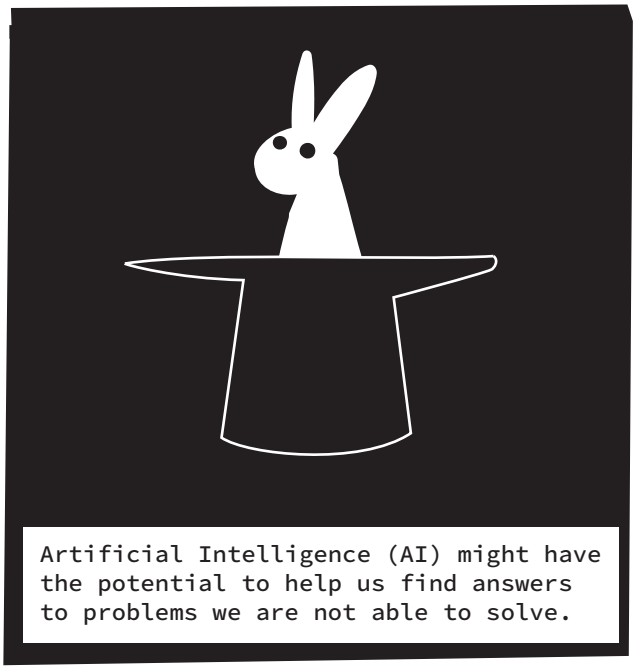


I love making sense of our world. I love to discover patterns in data, with code.

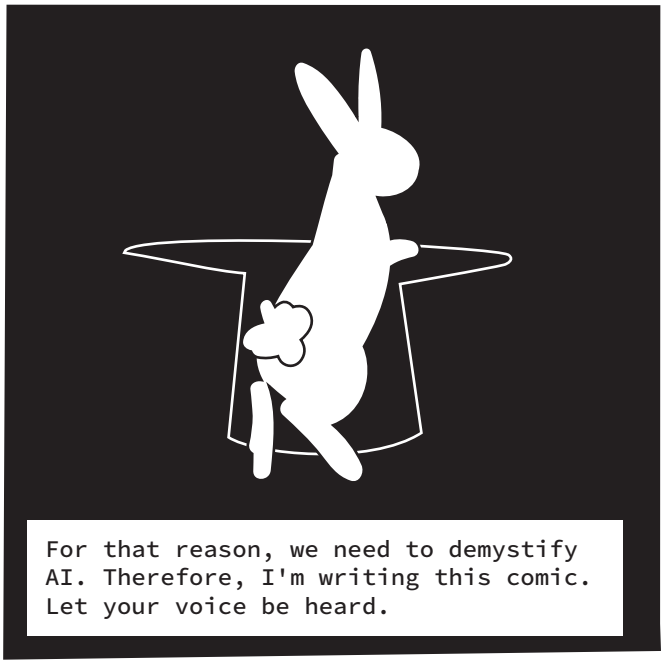
I love data`s friendliness, their lack of strategic answering. If they are biased it`s not their fault but ours.



Our brains are prone to some errors. Overconfidence. And discrimination against people who seem to be different from us.

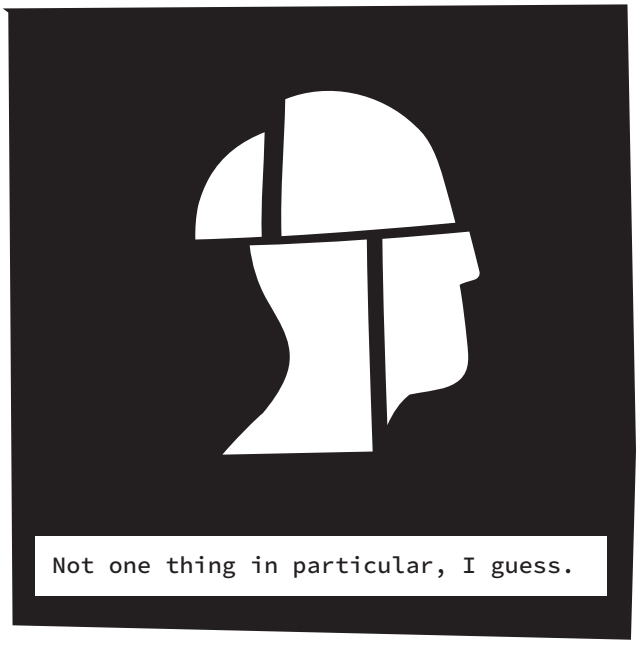


Artificial Intelligence (AI) might have the potential to help us find answers to problems we are not able to solve.

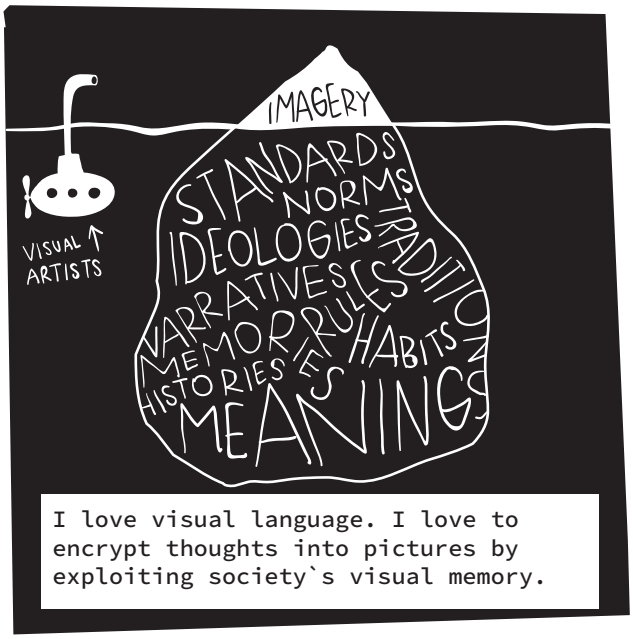


For that reason, we need to demystify AI. Therefore, I'm writing this comic. Let your voice be heard.

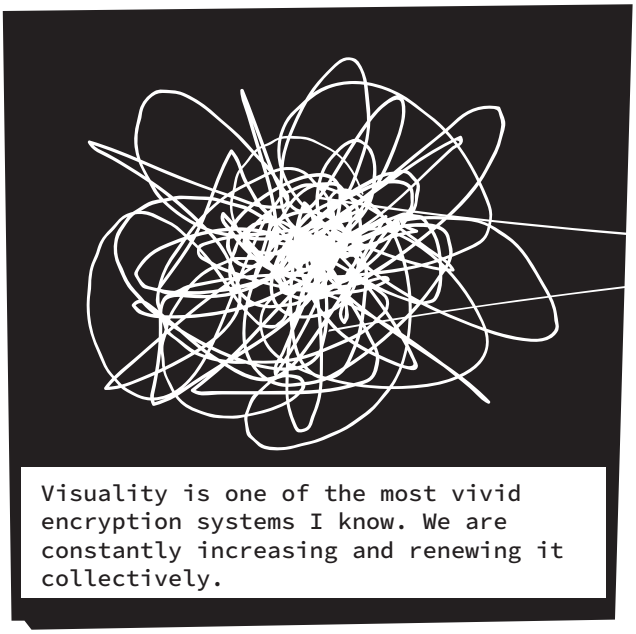
Who is Lena



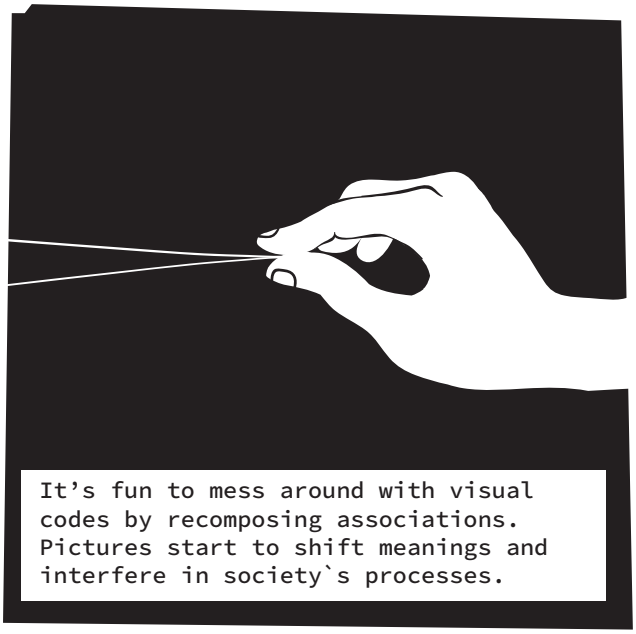
Not one thing in particular, I guess.



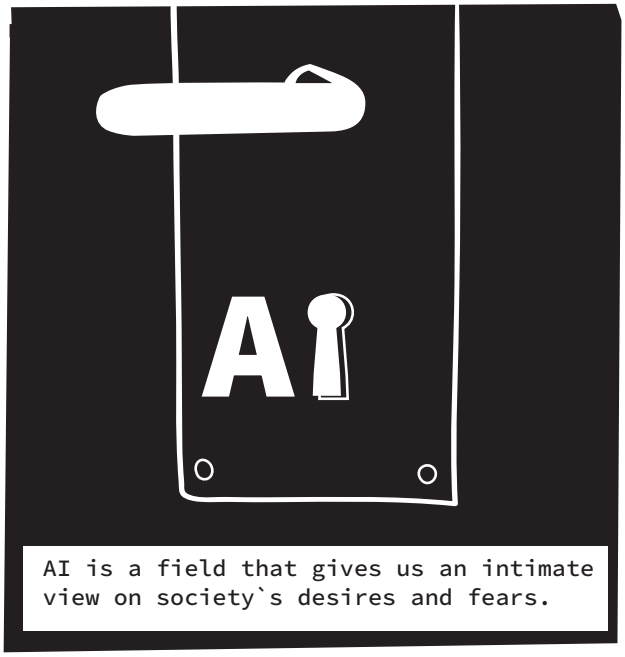
I love visual language. I love to encrypt thoughts into pictures by exploiting society`s visual memory.



Visuality is one of the most vivid encryption systems I know. We are constantly increasing and renewing it collectively.



It’s fun to mess around with visual codes by recomposing associations. Pictures start to shift meanings and interfere in society`s processes.



AI is a field that gives us an intimate view on society`s desires and fears.

Looking from different angles might help us to overcome commonly known perspectives. Let your view be seen!

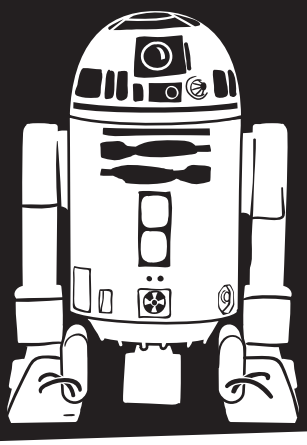
Lessons from AI in Fiction

1927

Hi, I'm Maschinen-Maria and I am from *Metropolis*. My skin is made of human skin.

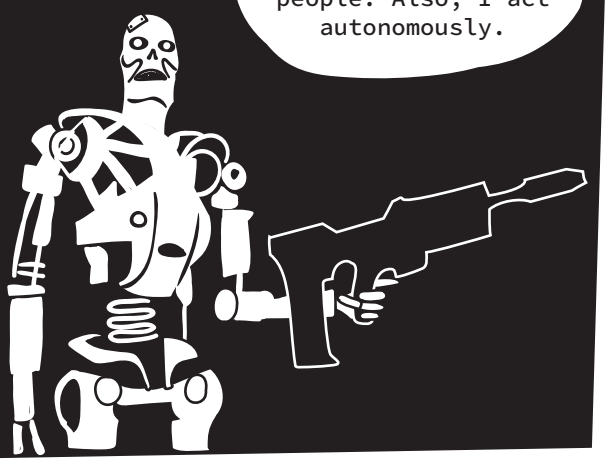
1977

Hi, I'm R2D2 and I am from *Star Wars*. I can solve multiple problems.



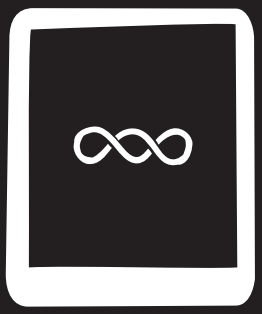
1984

Hi, I'm T-800 and I am from *Terminator*. I kill people. Also, I act autonomously.



2013

Hi, I'm Samantha and I am from *Her*. I have emotions and can build relationships.

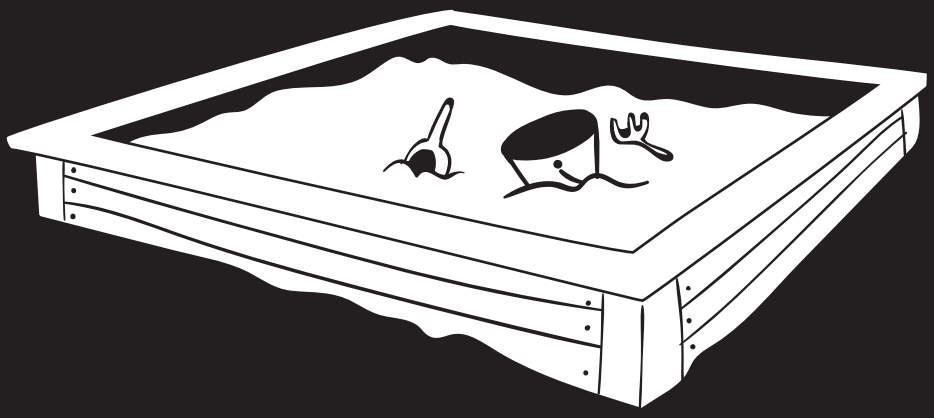


2014

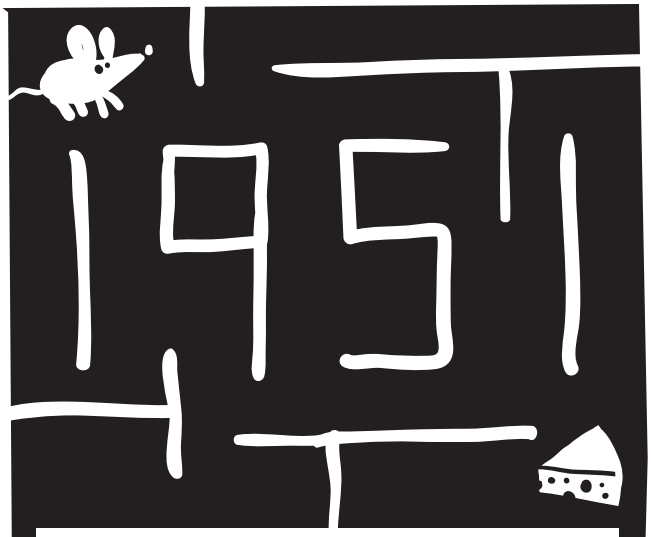
Hi, I'm Tars and I am from *Interstellar*. I am funny. Do you want to hear a joke?

Seems, like we should not seek to replicate but to augment ourselves.

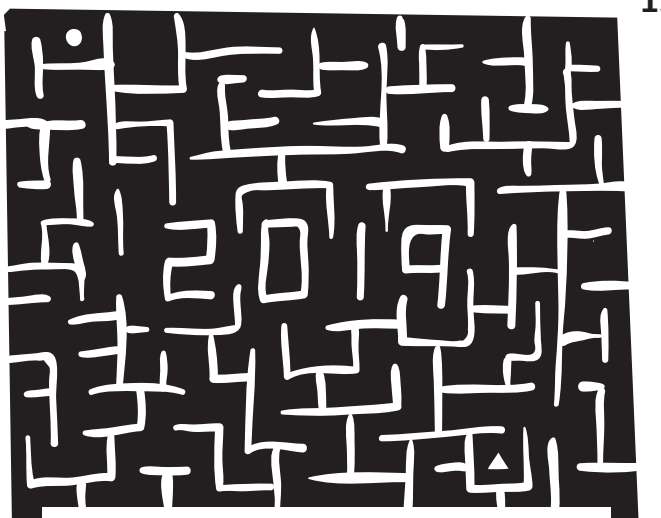
Basics



What is Artificial Intelligence?

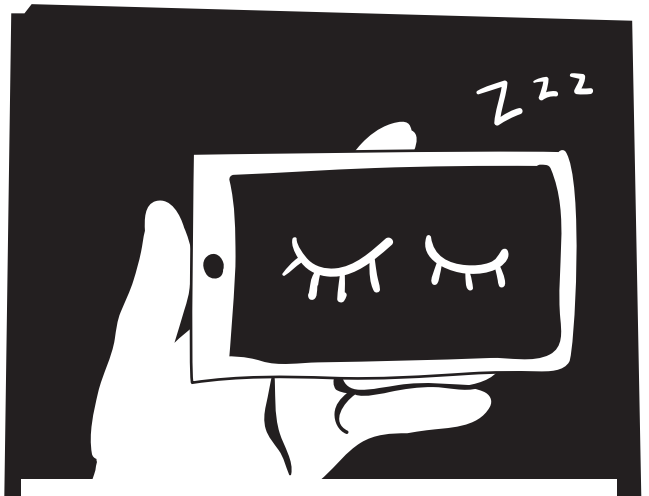


Actually, the methods are not new. Just the techniques and the data.



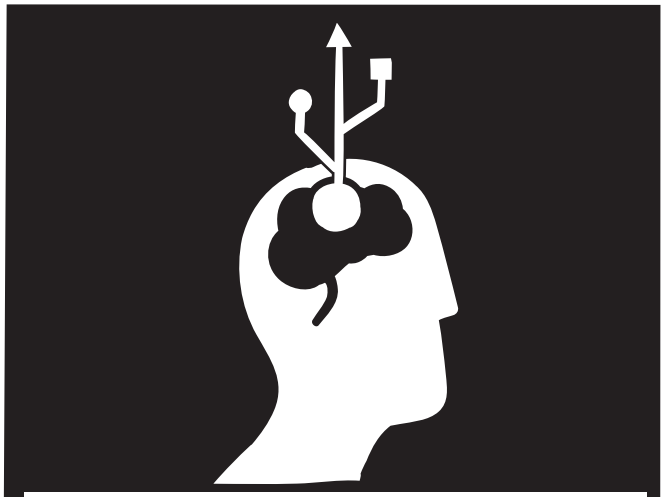
At the moment, AI is mainly concerned with performing complicated but repetitive tasks.

If you define intelligence as the ability to capture the essence of a new situation...



... real AI needs to think more like us. With intentionality, with emotions, with conscience; capturing counterfactuals.

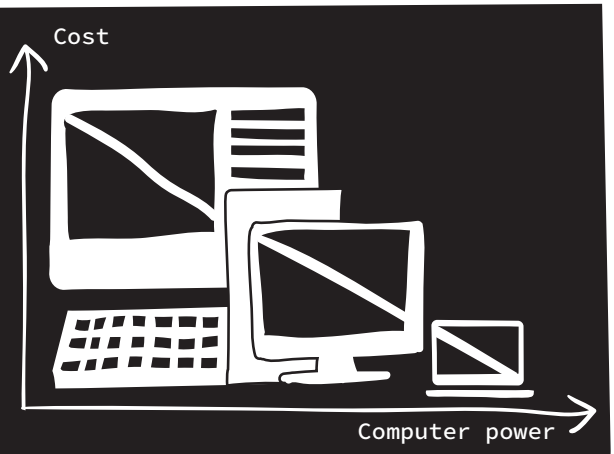
This being said, AI is still in its early stages (although it reads differently on the news).



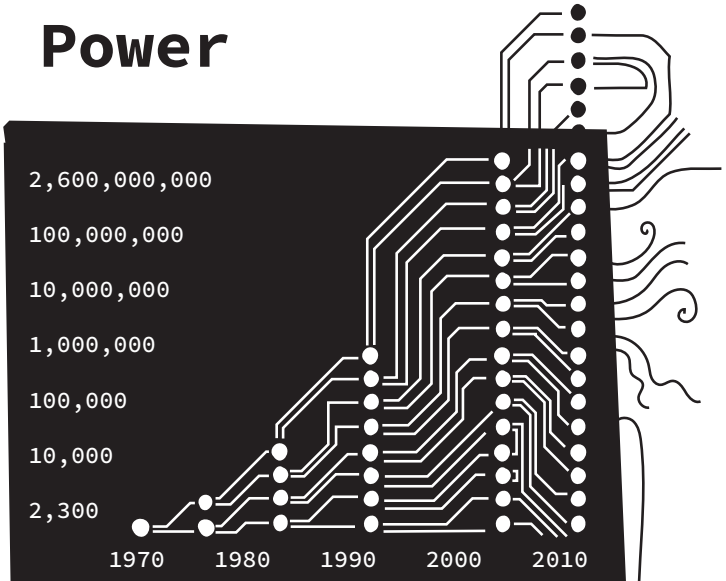
Up to now, it`s more adequate to speak of „artificially augmented intelligence“.*

*Nevertheless, we will use the term ‚AI‘ in the following to simplify matters. And please, find some reading suggestions at the end of the book.

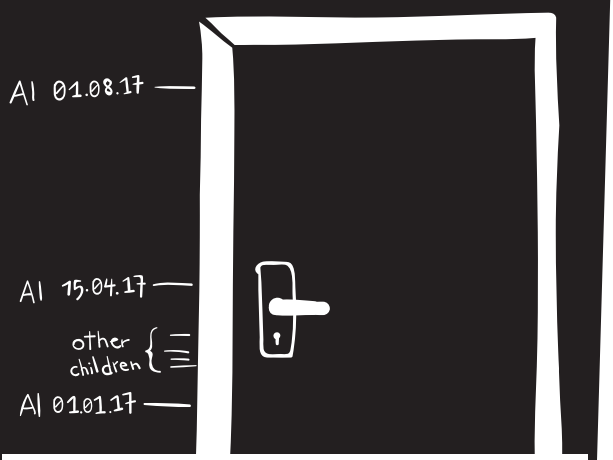
Computer Power



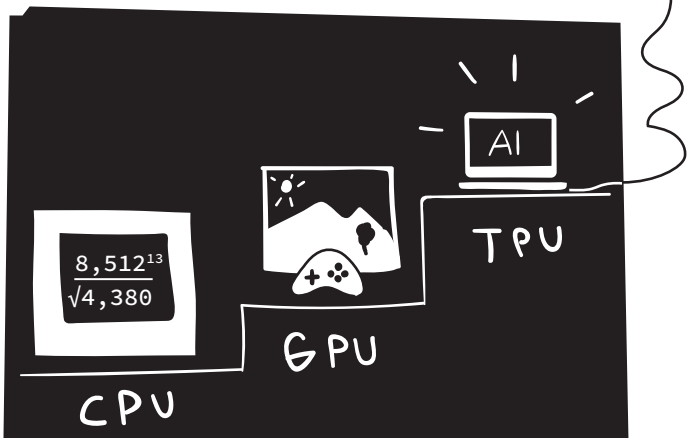
What kind of techniques helped establish AI? One key indicator is computer power.



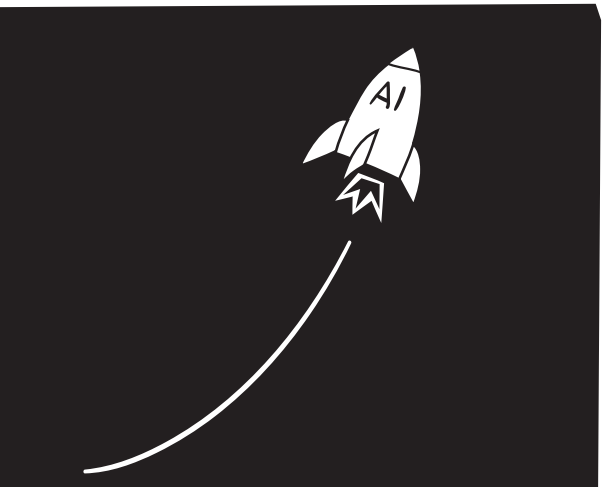
Moore's law is the observation that the power of computers will double every 18 months.



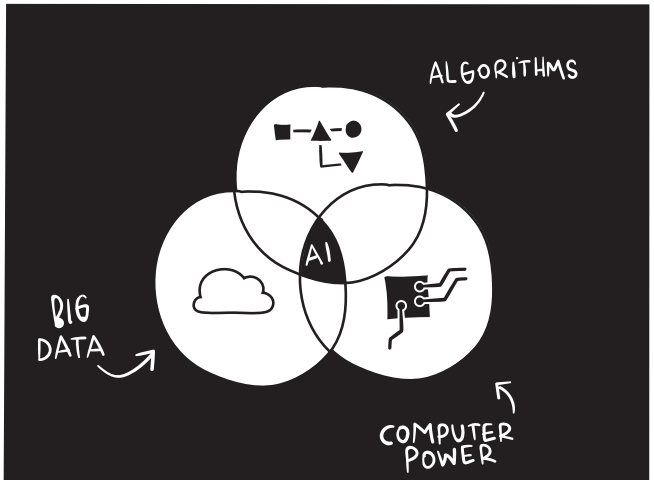
The amount of computer power used for training AI has gone up to 3,5 month-doubling time.



The growth has largely been driven by computer hardware, optimized to train and run AI-models.

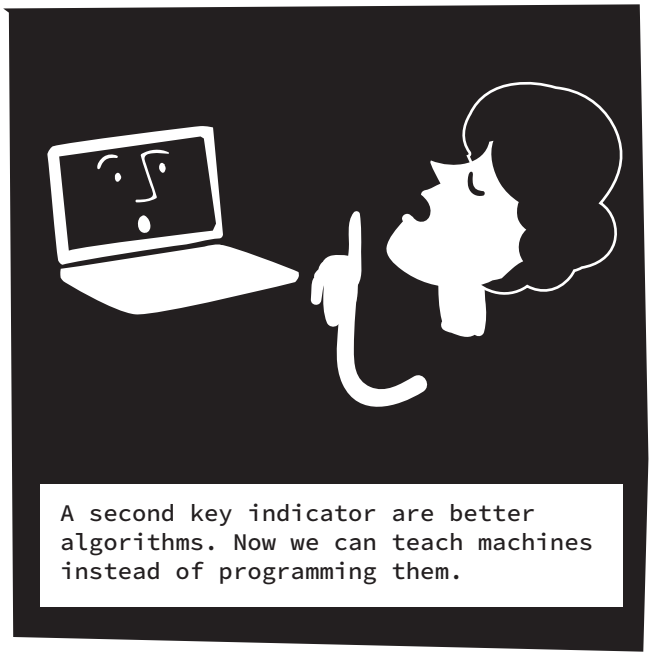


This explains why AI has been growing faster and faster…

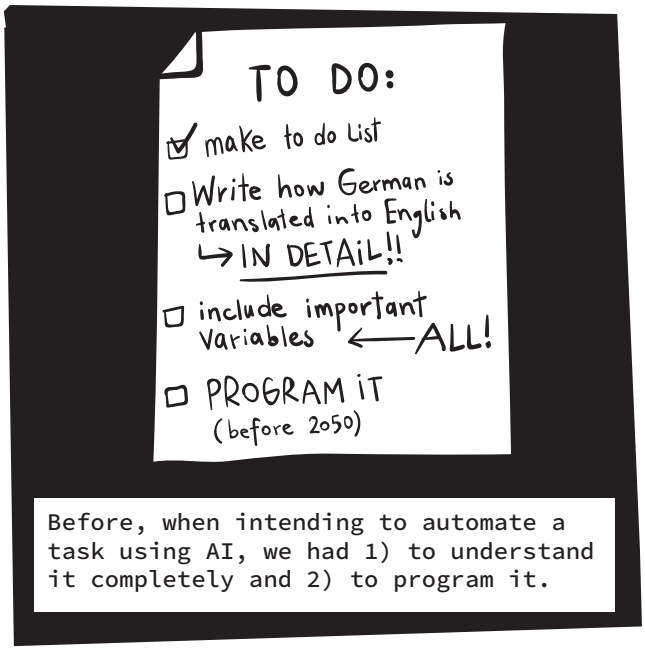


… together with advances in data availability and algorithms (=the recipes) behind AI.

Algorithms 1

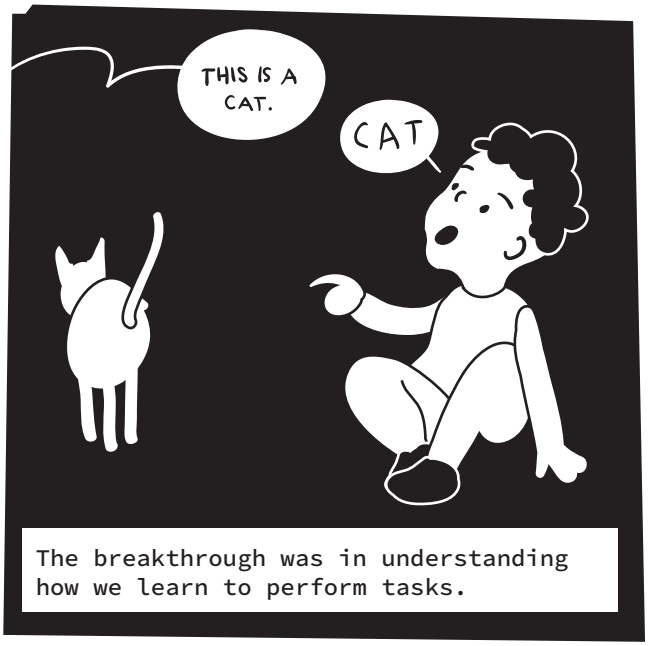


A second key indicator are better algorithms. Now we can teach machines instead of programming them.

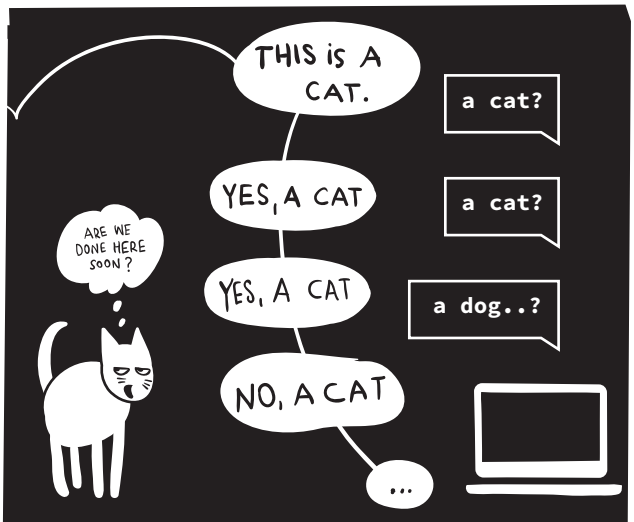


Before, when intending to automate a task using AI, we had 1) to understand it completely and 2) to program it.

The more complicated the task, the harder it was to automate.



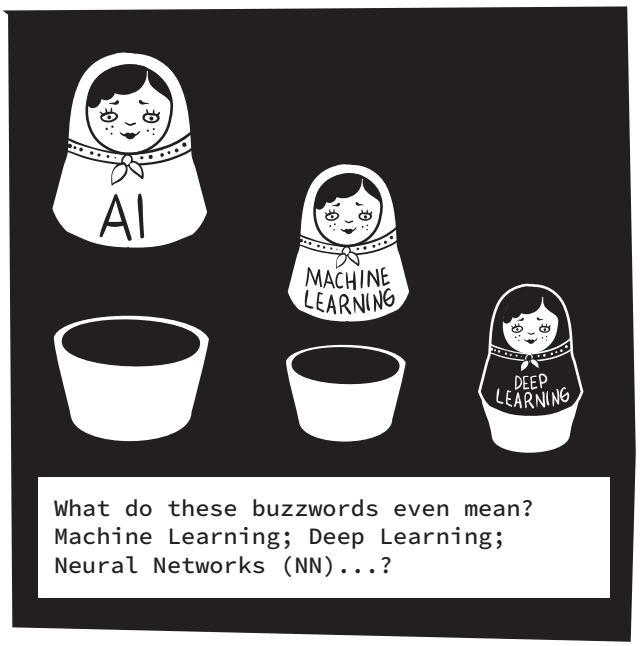
The breakthrough was in understanding how we learn to perform tasks.



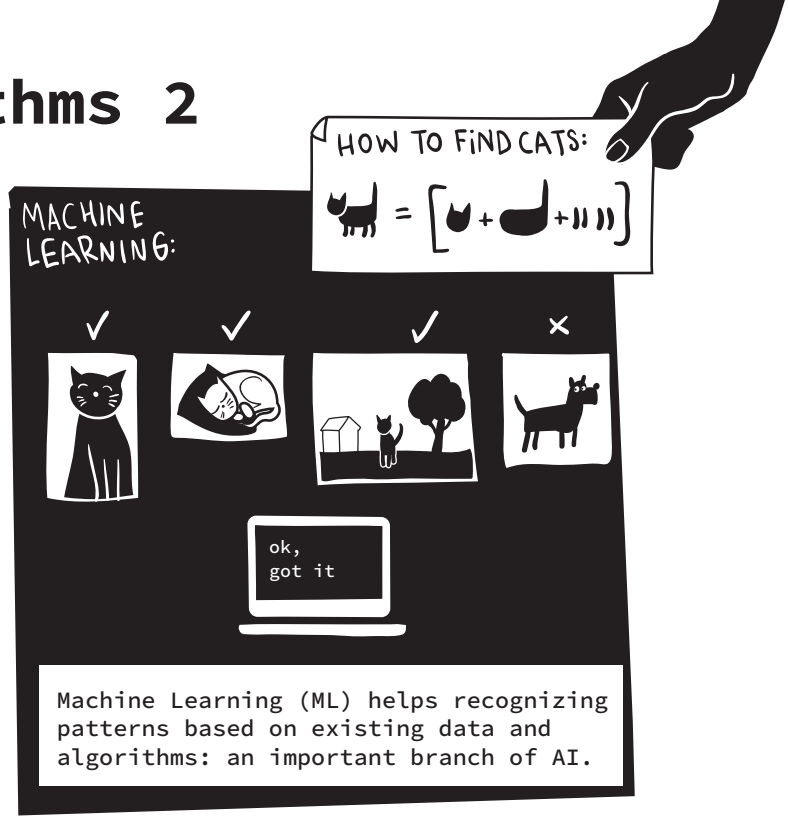
Nowadays, AI learns through trial and error, based on data we feed it. The more data, the more accurate it becomes.

Modern AI applications achieve breath-taking results that we could hardly imagine a few years ago.

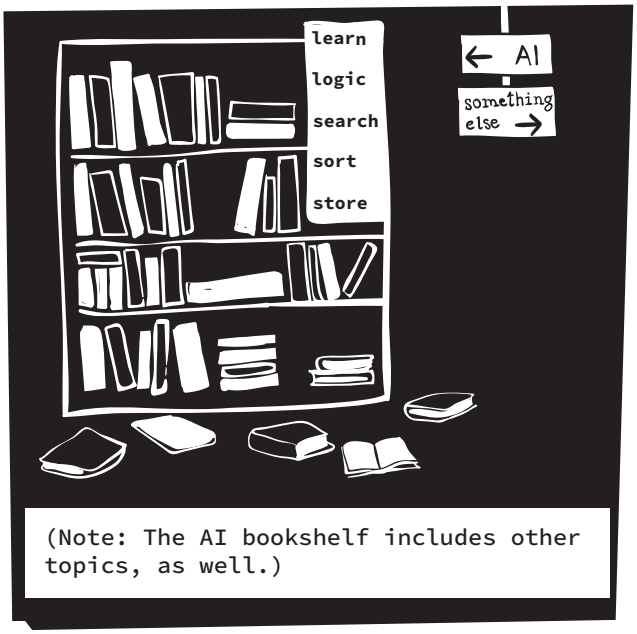
Algorithms 2



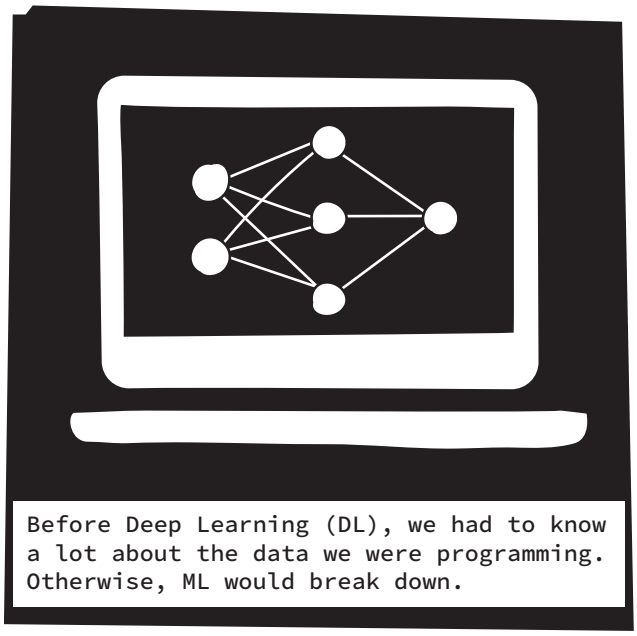
What do these buzzwords even mean? Machine Learning; Deep Learning; Neural Networks (NN)...?



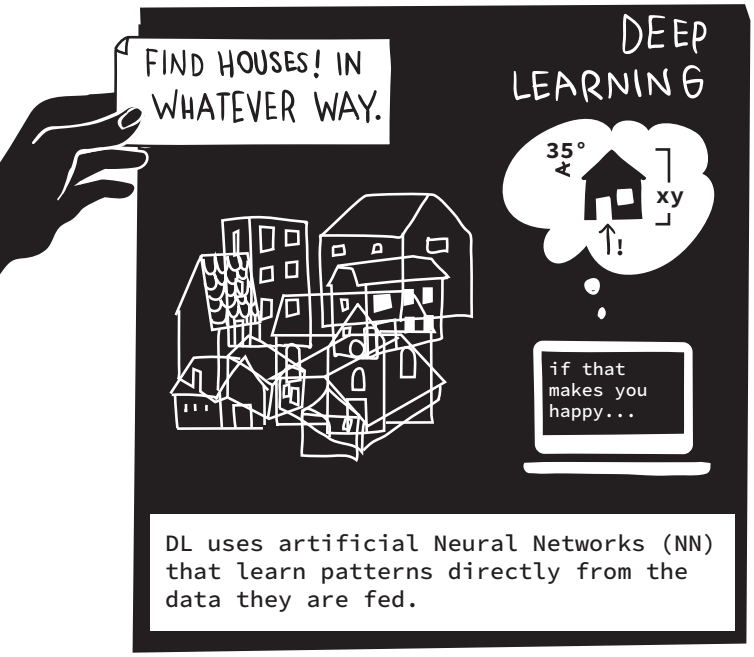
Machine Learning (ML) helps recognizing patterns based on existing data and algorithms: an important branch of AI.



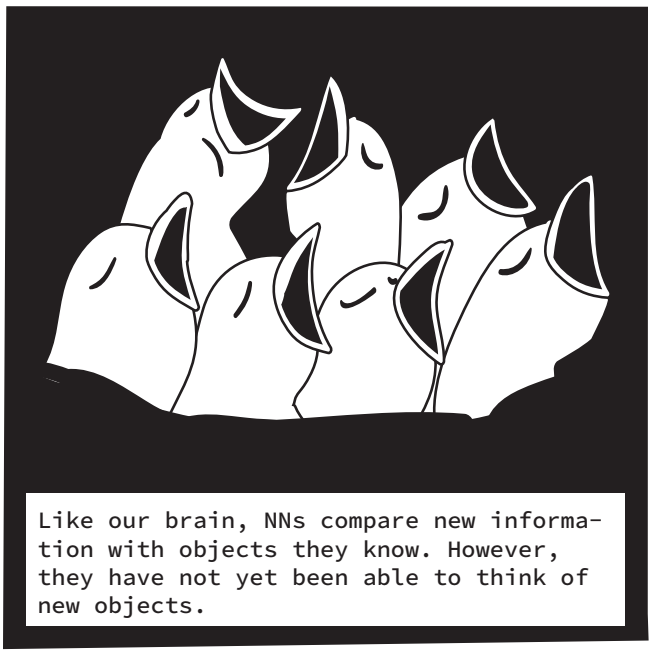
(Note: The AI bookshelf includes other topics, as well.)



Before Deep Learning (DL), we had to know a lot about the data we were programming. Otherwise, ML would break down.

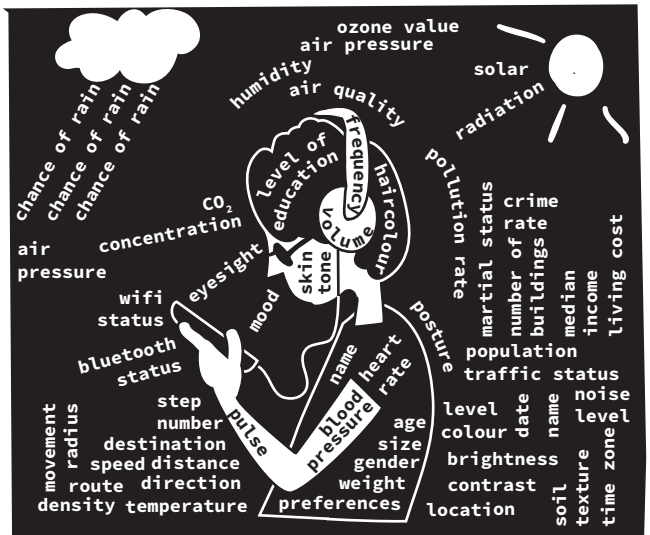


DL uses artificial Neural Networks (NN) that learn patterns directly from the data they are fed.

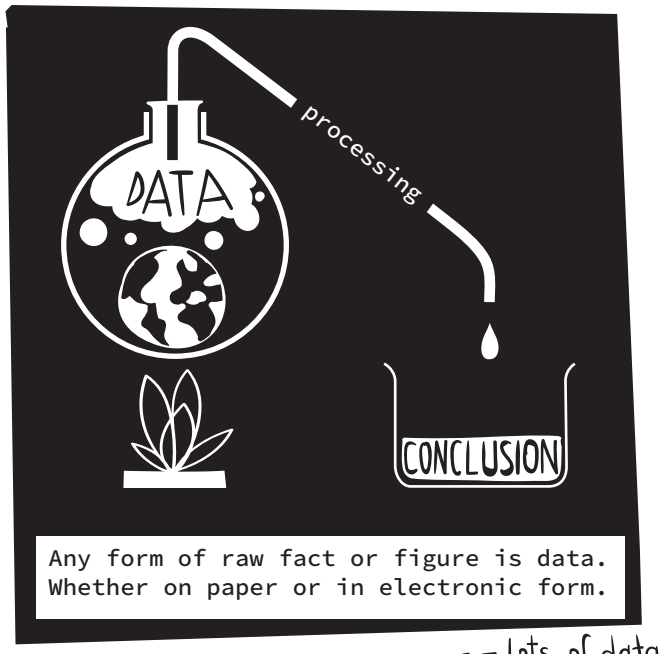


Like our brain, NNs compare new information with objects they know. However, they have not yet been able to think of new objects.

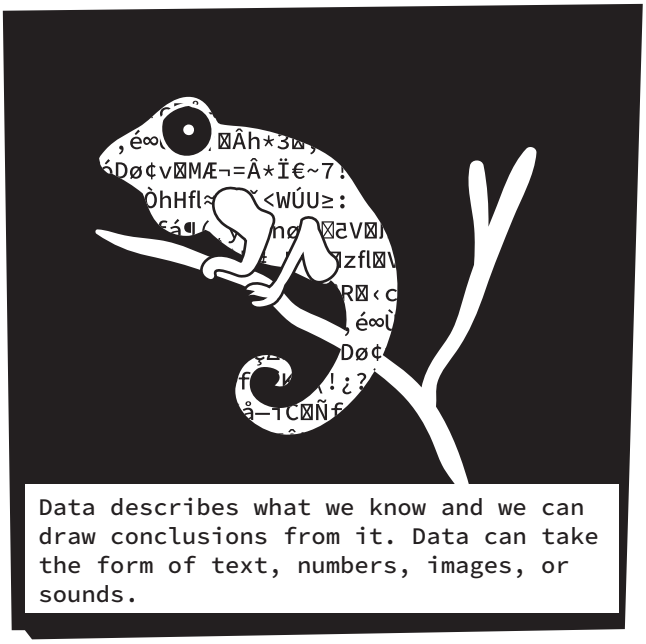
Data 1



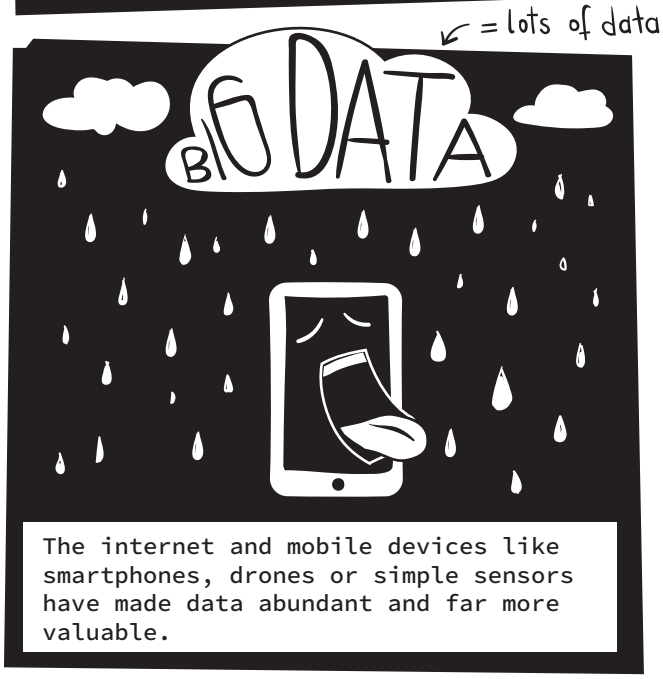
Data is the third element that makes AI so powerful. But what exactly is data?



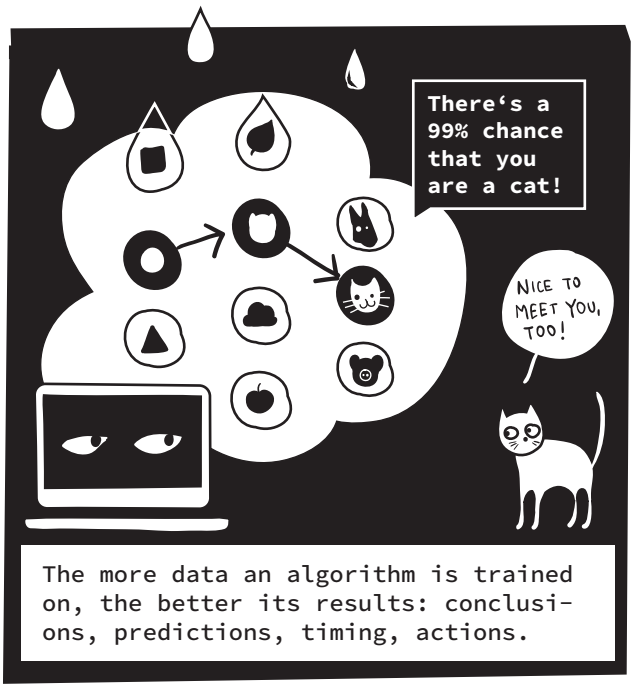
Any form of raw fact or figure is data. Whether on paper or in electronic form.



Data describes what we know and we can draw conclusions from it. Data can take the form of text, numbers, images, or sounds.



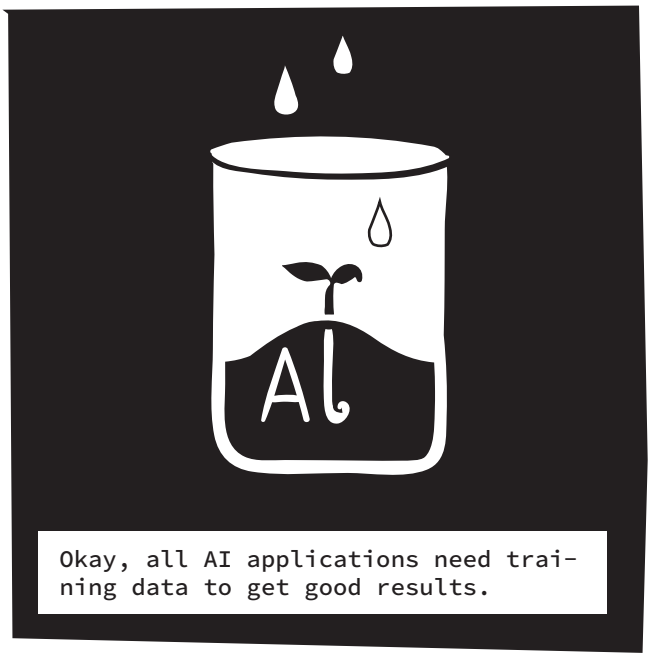
The internet and mobile devices like smartphones, drones or simple sensors have made data abundant and far more valuable.



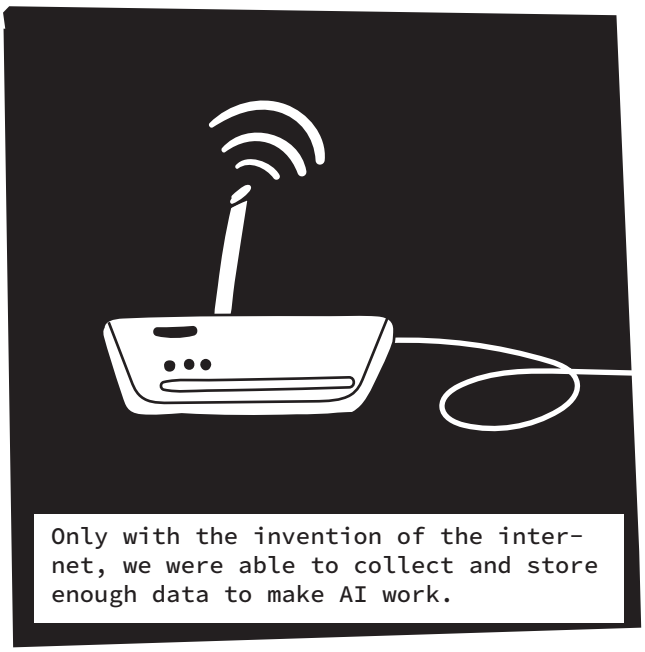
The more data an algorithm is trained on, the better its results: conclusi-ons, predictions, timing, actions.

Better results = higher usability = more users = more power. Therefore “data is the new oil”.

Data 2

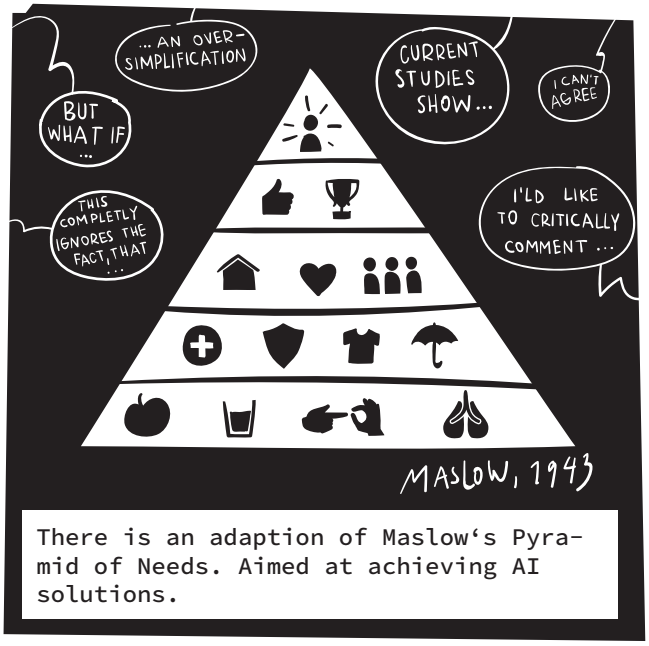


Okay, all AI applications need training data to get good results.

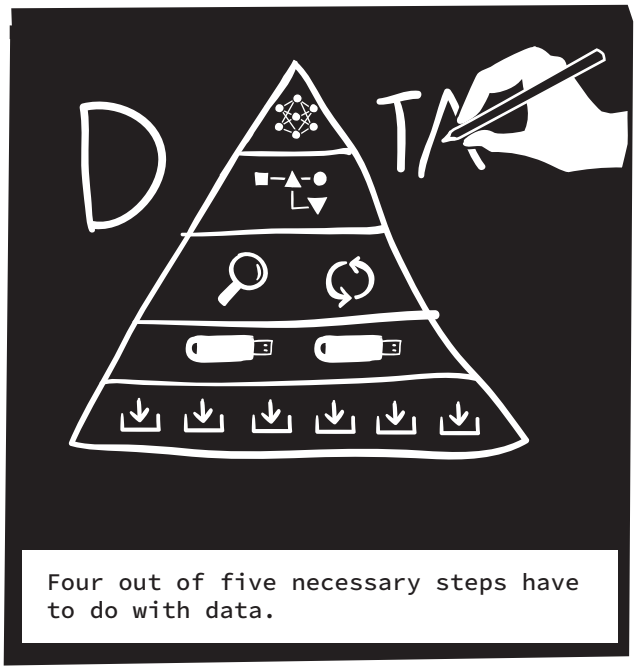


Only with the invention of the internet, we were able to collect and store enough data to make AI work.

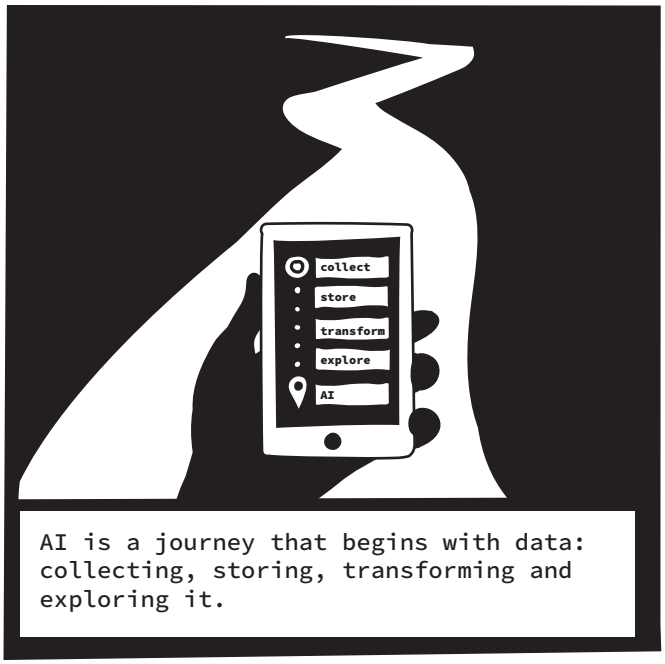
Too much data for us to process. Just the right amount for AI.



There is an adaption of Maslow‘s Pyramid of Needs. Aimed at achieving AI solutions.



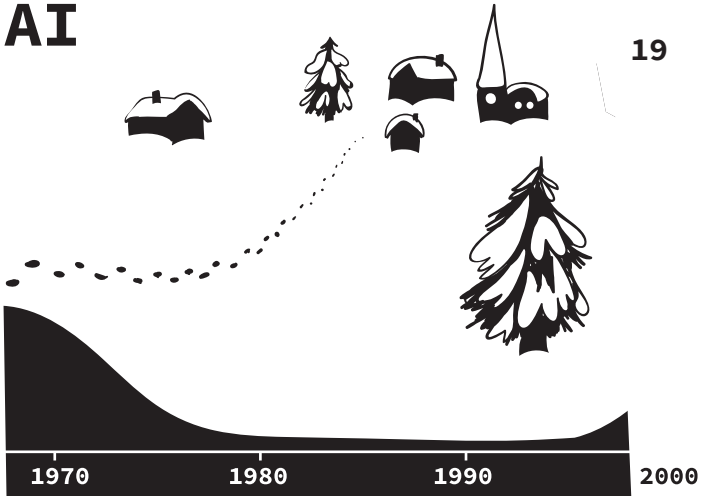
Four out of five necessary steps have to do with data.



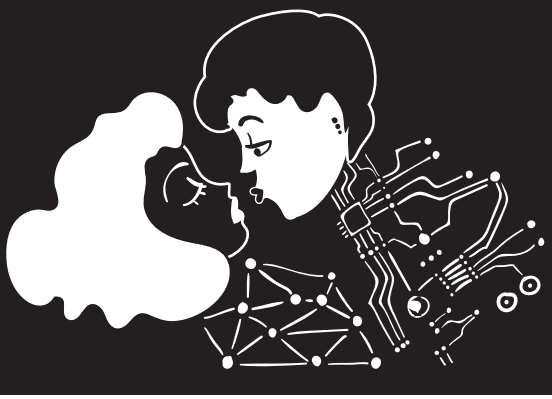
AI is a journey that begins with data: collecting, storing, transforming and exploring it.

General AI

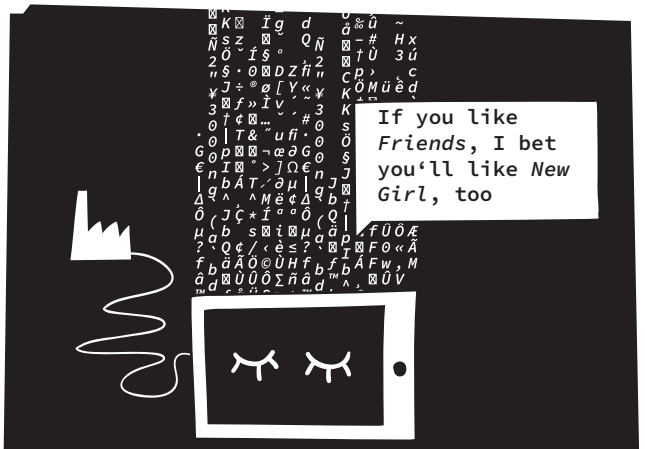
In the 1960s, AI pioneers hoped that machines could soon learn to think without human intervention.



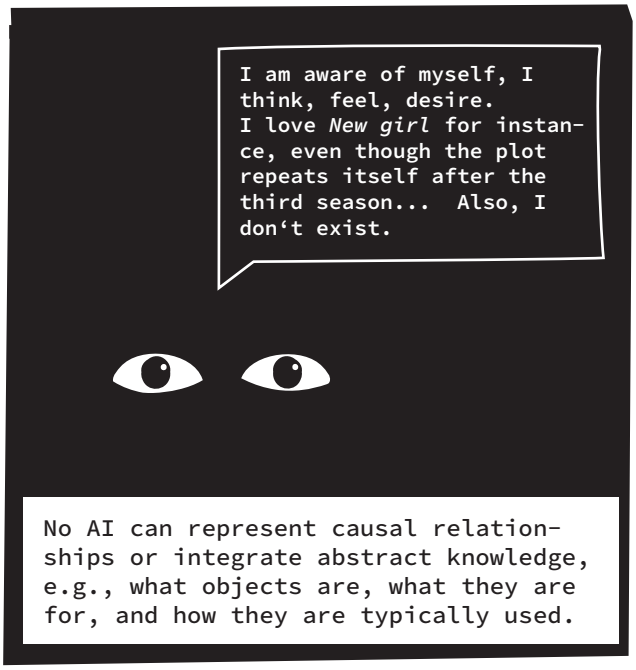
But from 1973 onwards, disappointment and criticism in the community, followed by pessimism in the press, led to the 1st “AI Winter”. A 2nd one followed.



Until the 2000s, AI was a dirty word that “simply didn’t work”. But when data, hardware and infrastructure were ready in 2010, a wide range of AI applications followed.



Despite their impressive progress and success, today’s AI is narrow. Its tasks are often classification and need a lot of data and a lot of energy.



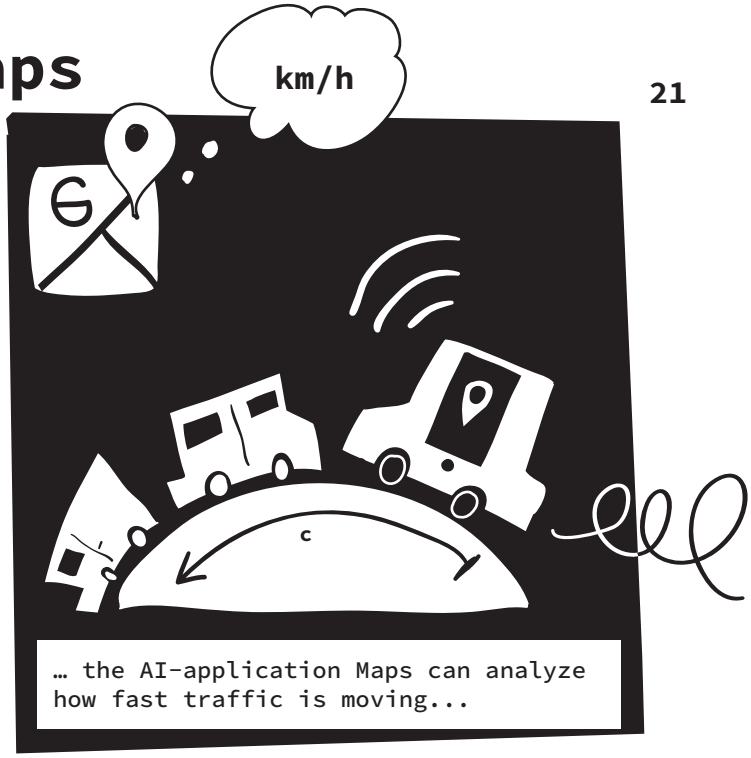
No AI can represent causal relationships or integrate abstract knowledge, e.g., what objects are, what they are for, and how they are typically used.

We really need to adjust our expectations and stop over-hyping AI. If we don’t, we may find ourselves in another AI Winter.

Examples

Maps

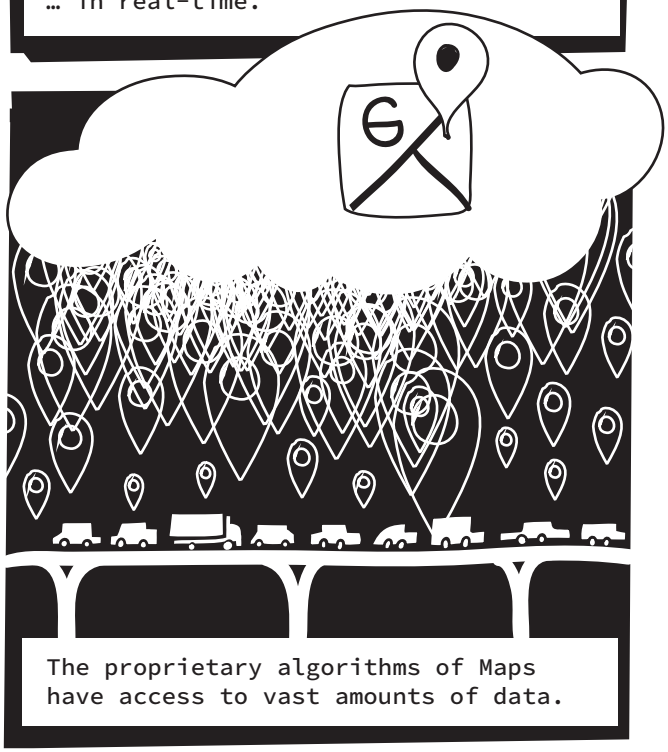
Using location data from smartphones...



… the AI-application Maps can analyze how fast traffic is moving...

… in real-time.

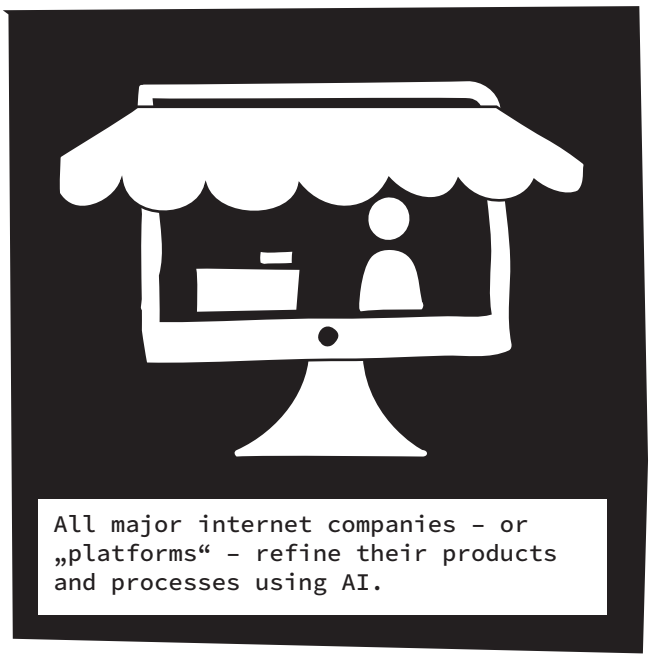
Additionally, maps incorporate user-reported traffic incidents.



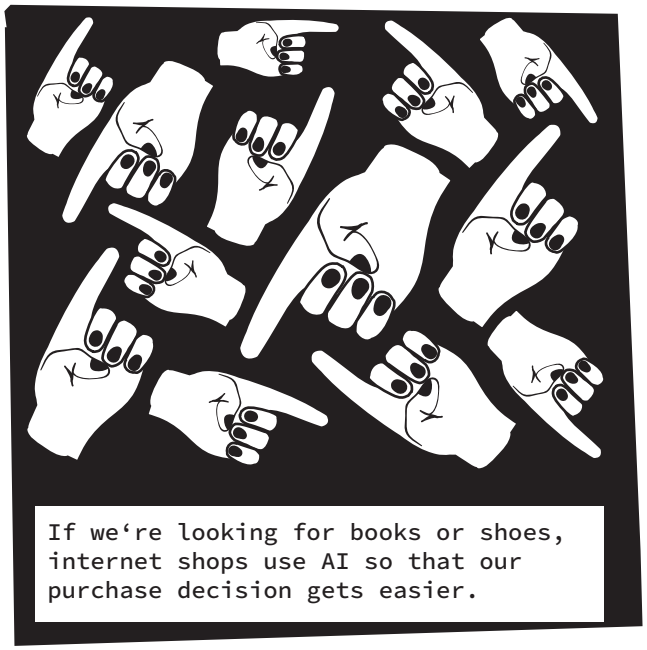
The proprietary algorithms of Maps have access to vast amounts of data.

This means, Maps can suggest the best and fastest routes for us.

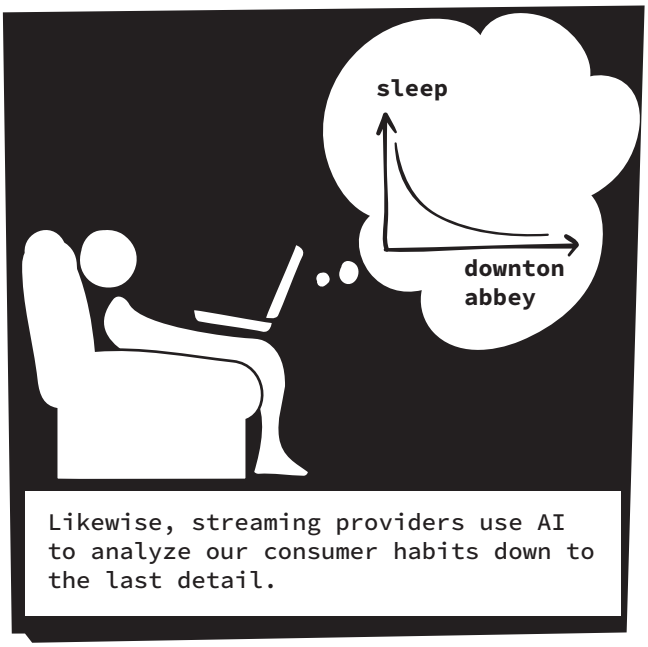
Recommendation



All major internet companies – or „platforms“ – refine their products and processes using AI.



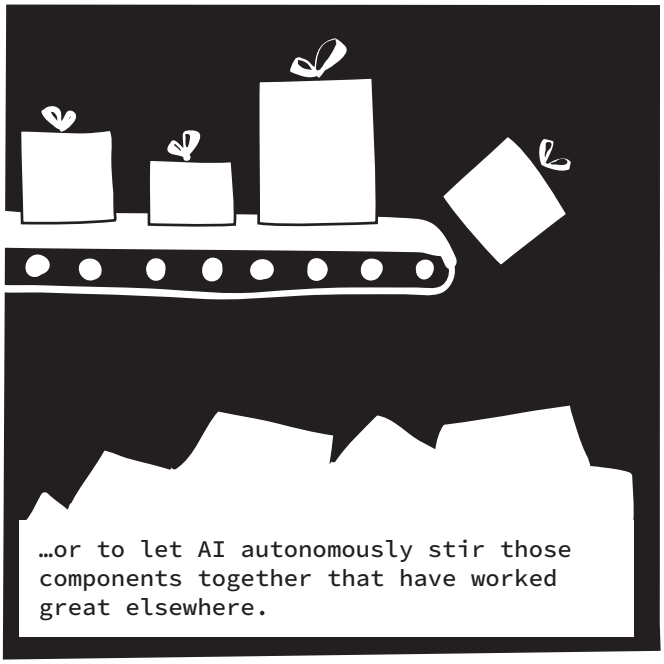
If we‘re looking for books or shoes, internet shops use AI so that our purchase decision gets easier.



Likewise, streaming providers use AI to analyze our consumer habits down to the last detail.

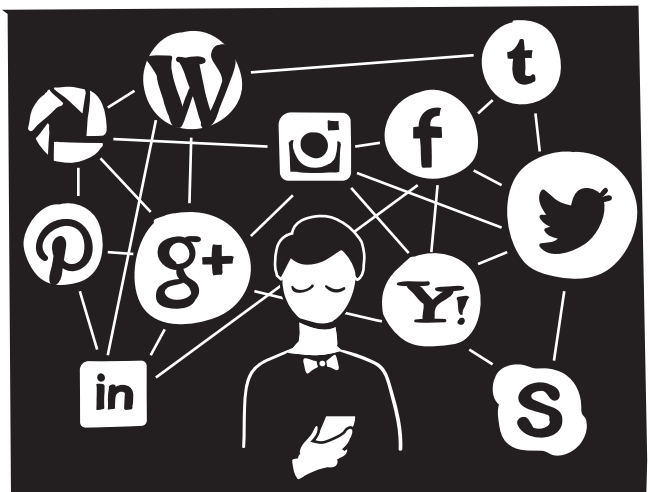
We benefit from improved suggestions and rediscoveries of old pearls which we have missed so far.

Also, the platforms use the knowledge of our habits to create and offer new products similar to previous successes…



…or to let AI autonomously stir those components together that have worked great elsewhere.

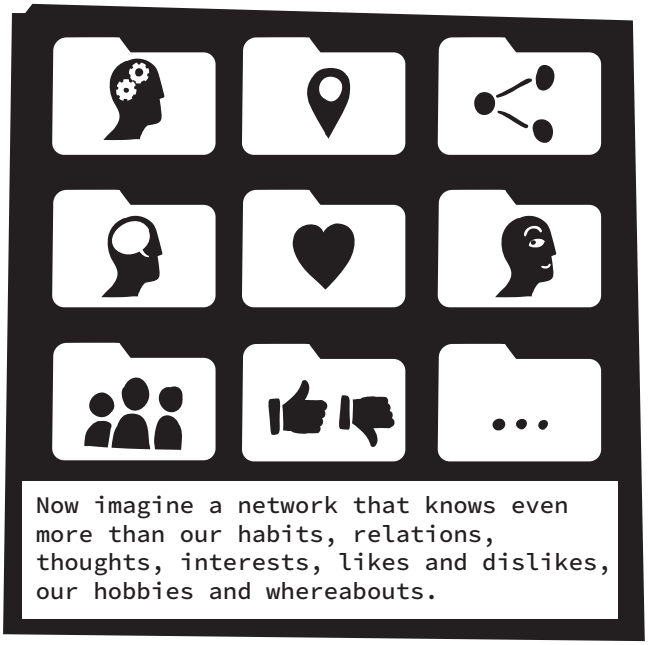
Social Networks



Those of us who use social networks use AI frequently, without necessarily knowing it.

Social networks use AI to recommend friends, news, photos, tags, advertisements.

They even „curate“ the posts of your friends according to general or personal interests - with the help of AI.



Now imagine a network that knows even more than our habits, relations, thoughts, interests, likes and dislikes, our hobbies and whereabouts.

Our state of health or bank account for example.

In China, this already exists in the form of „WeChat“. Just recently, the Chinese government officially announced to supervise each group with 12+ members.

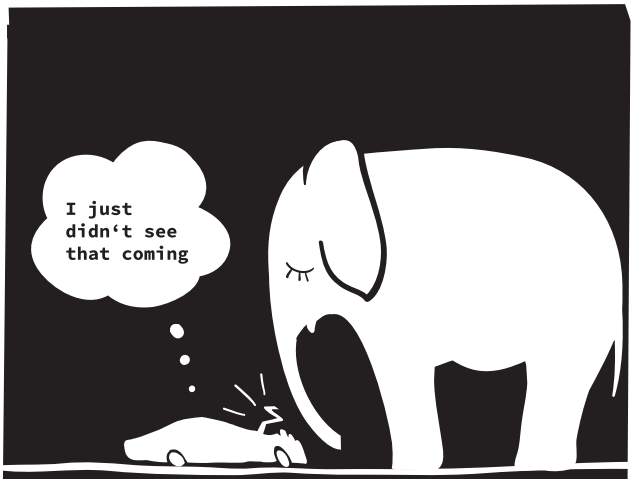
Self-driving Cars

Today, we can already activate the autopilot function which automatically and comfortably drives our car or flies our plane.

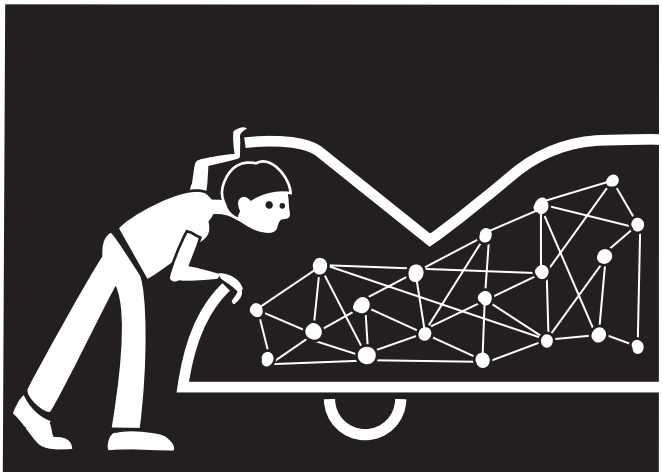
But ultimately, we are responsible. The systems are not autonomous - or self-driving.

Within a few years, this might change.

We would have plenty of room to sleep, work, read or play, sober or drunk after a party.

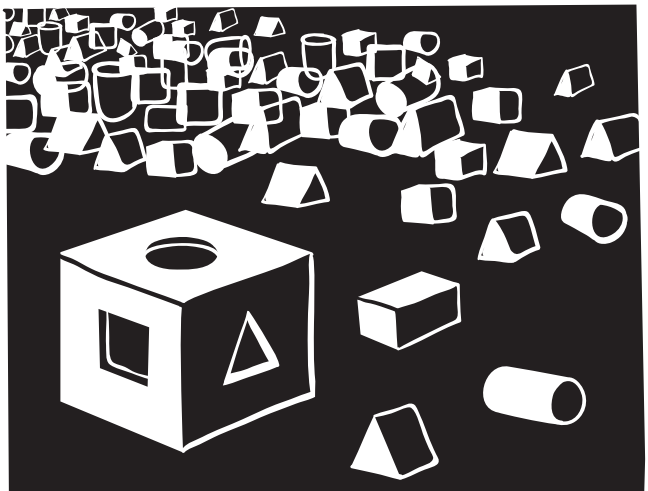


Or maybe not. Nearly every car accident involves some sort of unforeseen circumstances, the AI must confront for the first time.



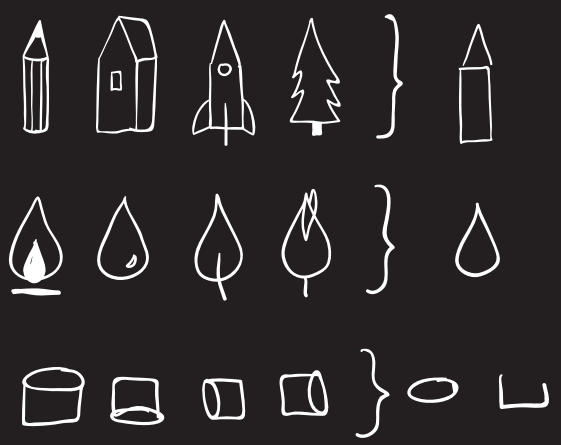
Moreover, user tests show that we need autonomous systems to explain their decision to feel safe. Not easy.

Identifying Images

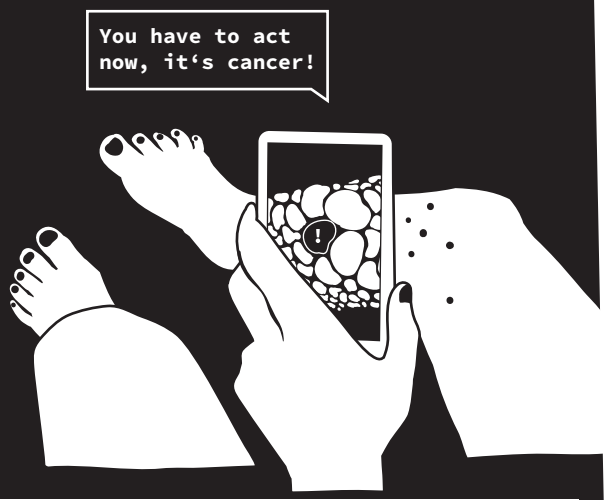


A lot of AI work deals with identifying patterns. At an enormous scale.

In 2015, computers made fewer mistakes than we do sorting images into predefined categories.

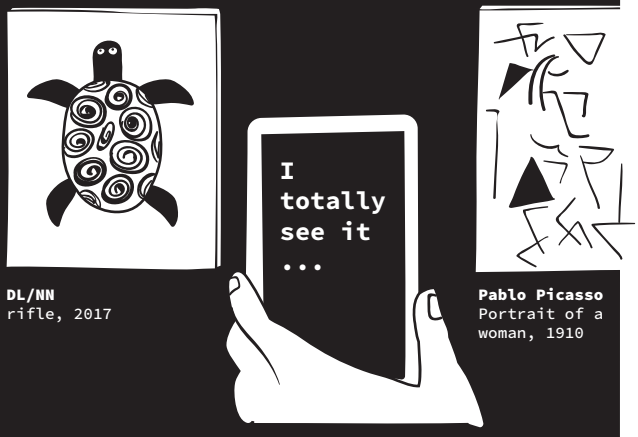


Since 2018, everybody can use a free tool helping AI beginners detect images.



While early image identification could be lifesaving...

...sometimes it is life-threatening. The military is a huge fan of it, too.



Unfortunately, AI is susceptible to hallucinations: caused by biased data or by hackers who, for example, make AI mistake guns for apes.

Emotional AI

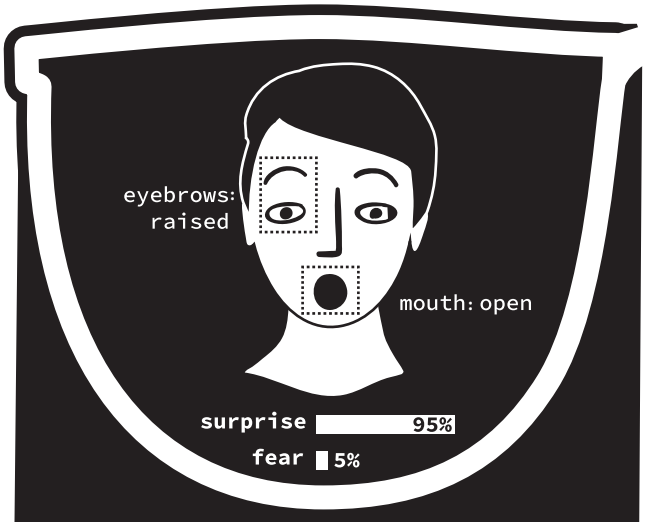
;)

Only ~ 10% of the emotional meaning of a message is conveyed through words.

To really understand us, you need our facial expressions, our tone of voice, our gestures plus our words.

As our relationship with AI is becoming more and more intimate...

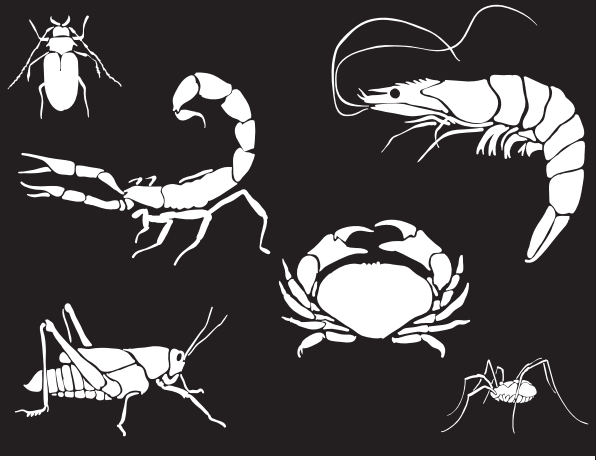
... we need our AI devices (like assistant systems, cars, or robots) to sense and adapt to what we mean and not only to our words.



Indeed, Emotional AI could help us with some highly valuable tasks. Help autistic children, for example, to learn emotions.

Nonetheless, our freedom of thought might be at stake in hostile scenarios.

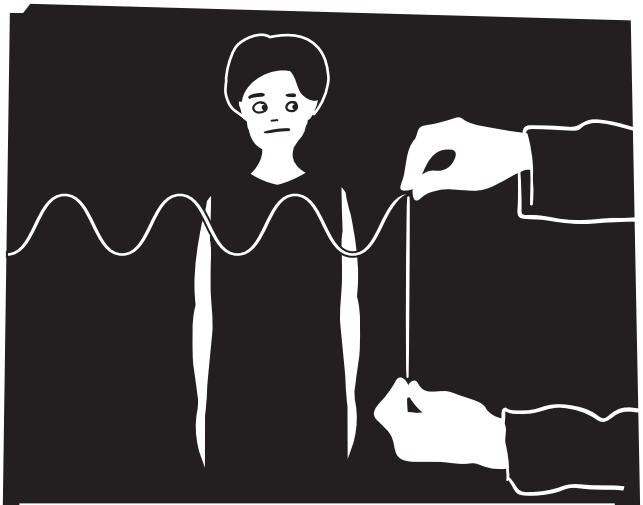
Exoskeletons



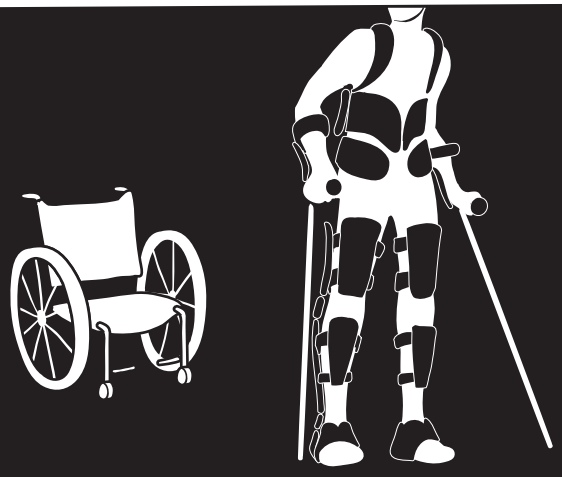
Exoskeletons are an external framework we can wear to augment our natural physical ability and reduce strain and weaknesses.

But every one of us is different.

We need assistance that is specifically fit for us. We need to tailor our devices at an individual level.



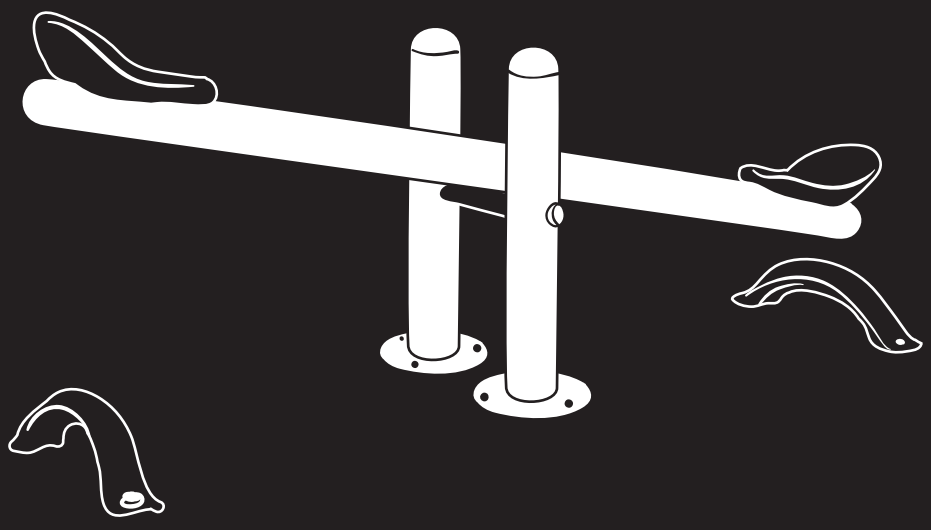
AI can use real-time measurements of our body signals, our breathing rate or hip extension for example.



This way, the AI can get our individual profile right. AI can make our exos-keletons fit our needs - elderly man or firefighter.

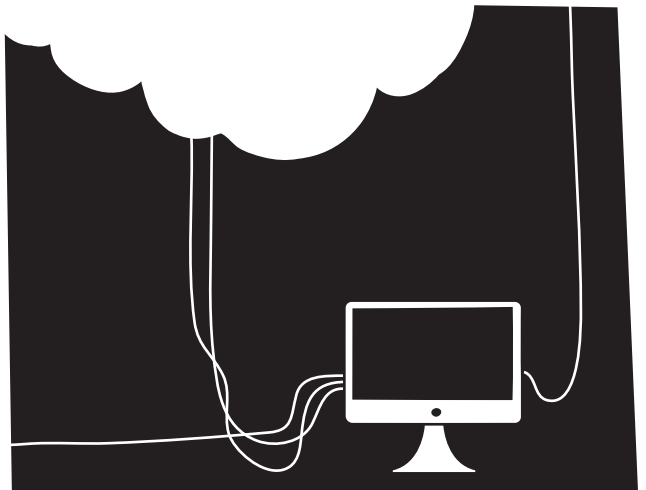
Our bodies are different and constantly changing. Nowadays, the only feasible way of translating this to robotics is through the help of AI.

Chances

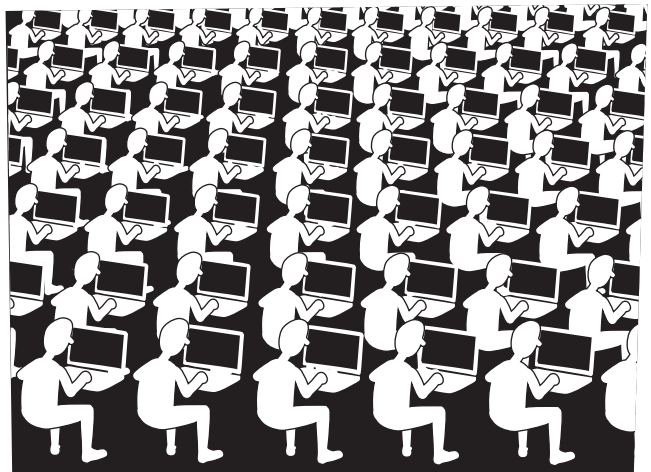


Dealing with Big Data

Our power to analyze the tons of data we are now able to store and to collect can be a bottleneck.

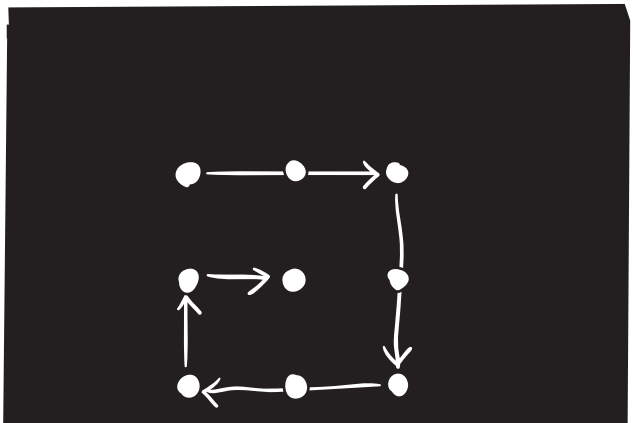


AI helps us deal with large and complex datasets in ways we have never seen before.

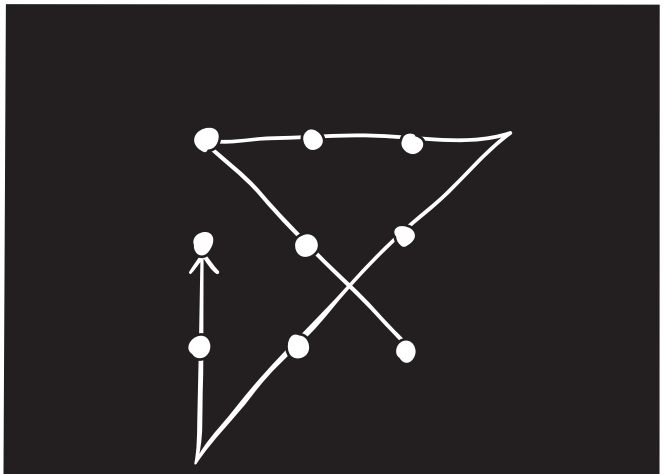


Even with hundreds of us analyzing patterns in big data, the sheer volume simply overwhelms our capacities.

Even if we could analyze data, but it proves to be exhausting and tedious, we can use rule-based AI systems - expert systems - that do the job for us.

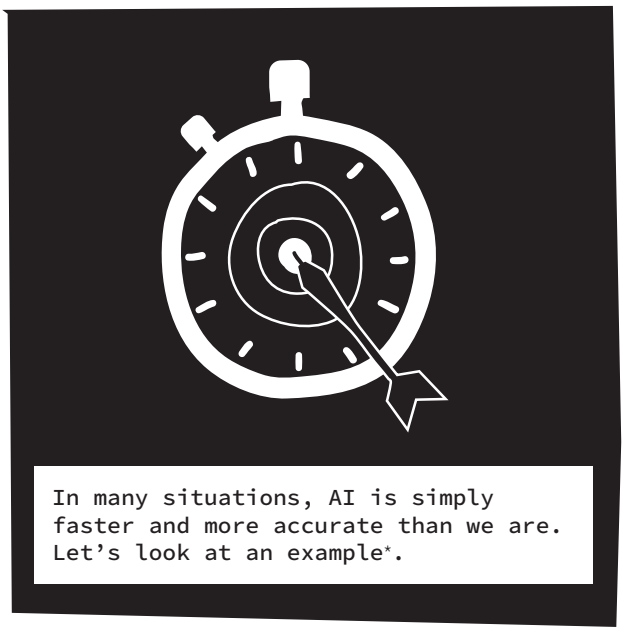


Traditional algorithms are bound to follow the same logic over and over, without flexibility or learning new paths with new data.



Now enter AI. Because AI systems get smarter as more data is given to them, they are well suited for patterns and anomalies over the time.

Efficiency

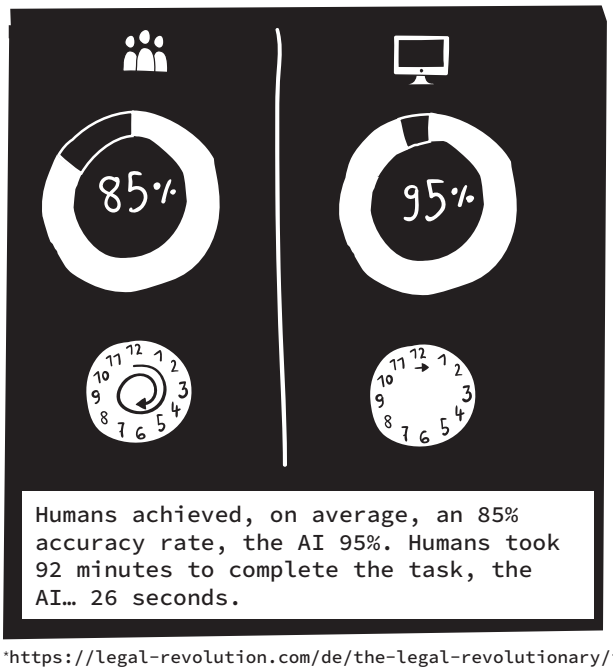


In many situations, AI is simply faster and more accurate than we are. Let's look at an example*.

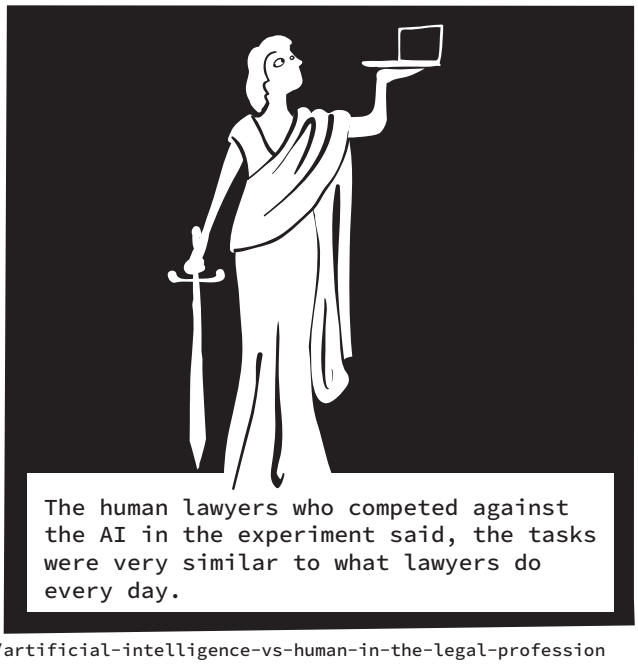
A legal platform carried out a competition between 20 experienced lawyers against a trained AI.

Competitors had to review 5 legal contracts in 4 hours and identify 30 legal issues.

They were rated according to how accurately they identified each issue. Who won?



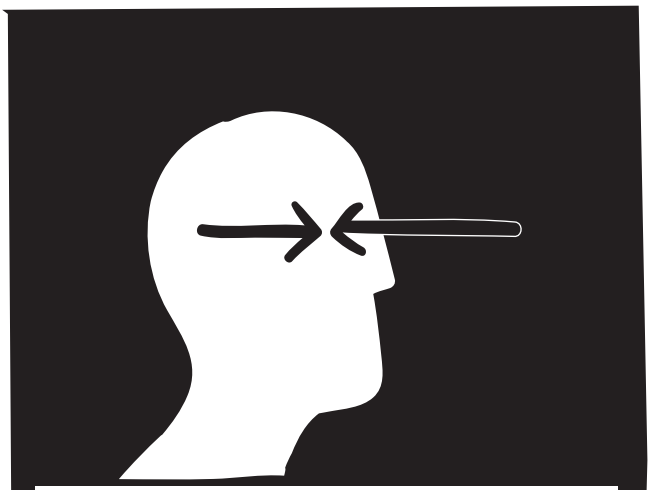
Humans achieved, on average, an 85% accuracy rate, the AI 95%. Humans took 92 minutes to complete the task, the AI… 26 seconds.



The human lawyers who competed against the AI in the experiment said, the tasks were very similar to what lawyers do every day.

*https://legal-revolution.com/de/the-legal-revolutionary/ik/artificial-intelligence-vs-human-in-the-legal-profession

Cognitive Biases

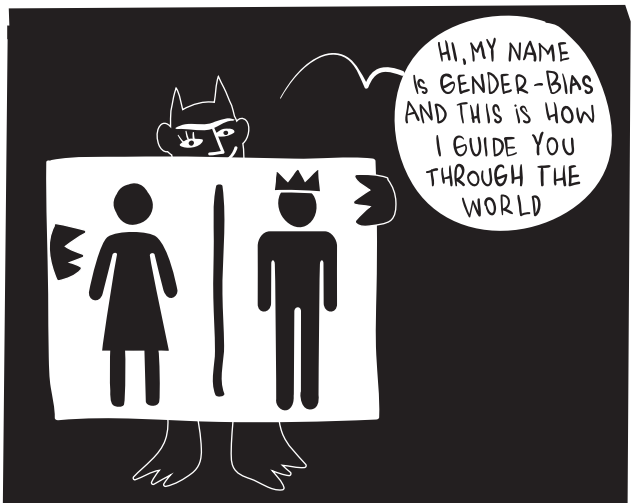


Our brain, as a result of evolution, was not optimized for rational decision-making or perfect diagnoses.

Instead, we strive for a competitive degree of „fitness“ in our specific environments; quite fast and often satisfying.

Our brain power is biologically limited; therefore, we work with heuristics, trust our gut feeling or store & retrieve wrong evidence.

We call this cognitive bias. There are many of them and we share them to some degree.

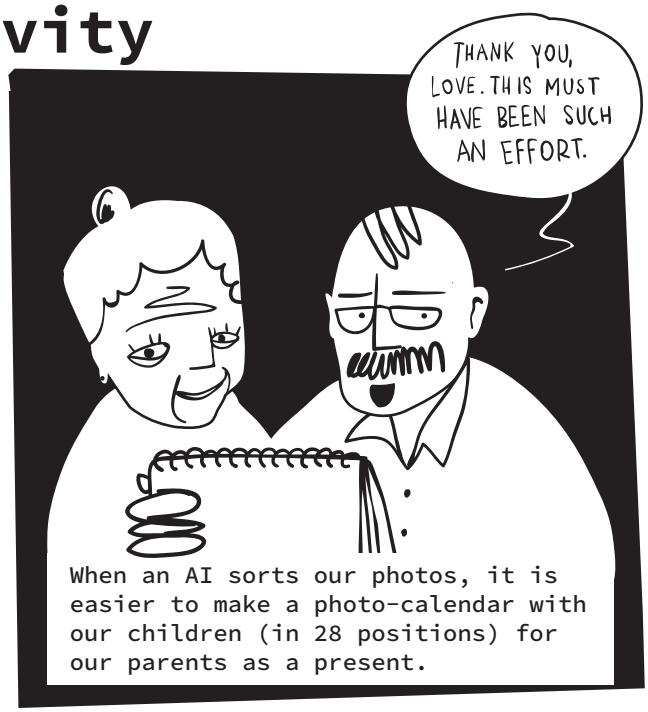


And this is what makes our distortions have large-scale consequences. Were they random, they would cancel out.

Used wisely, AI could indeed help us improve our diagnoses and decisions.

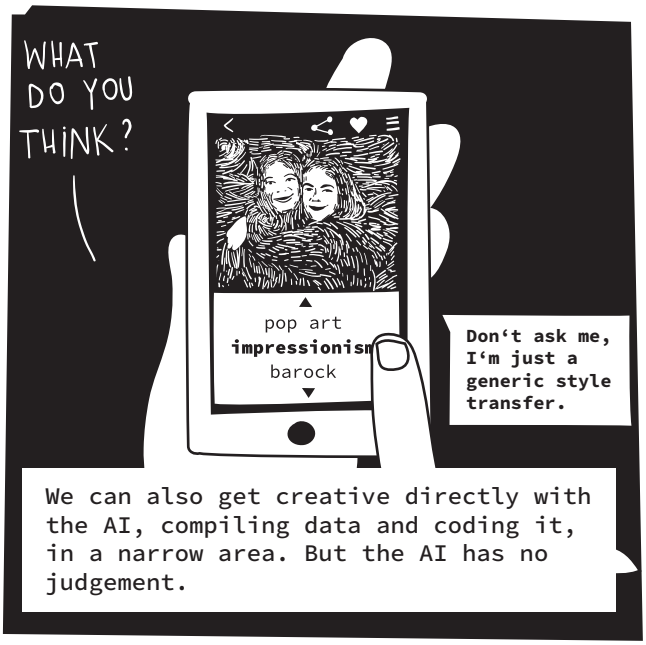
Creativity

AI can save time otherwise wasted on stupid, tedious work for creativity. But it can do even more.



When an AI sorts our photos, it is easier to make a photo-calendar with our children (in 28 positions) for our parents as a present.

When an AI puts together a playlist of up-and-coming producers of house music, it may inspire our next DJ-set.



We can also get creative directly with the AI, compiling data and coding it, in a narrow area. But the AI has no judgement.

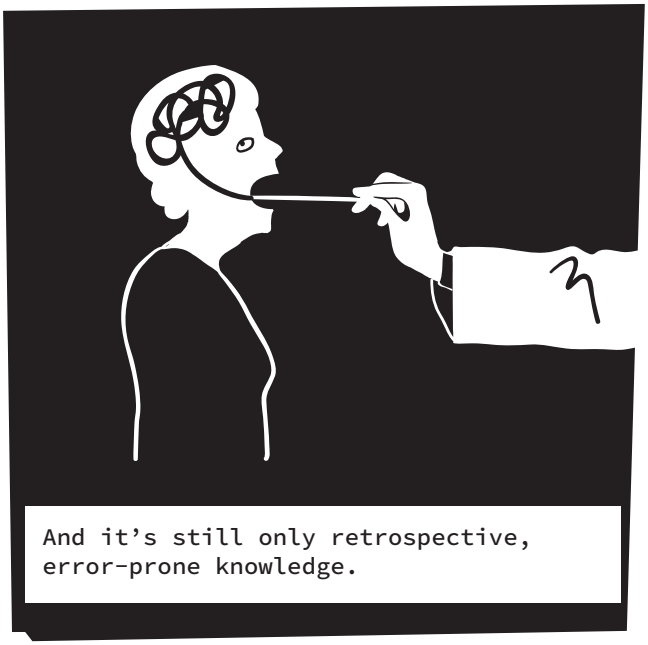
Judging is an ability we possess. And we love doing it. This is where AI together with us can achieve great things, with a human tweak.

The smaller the role of humans in the process of art-creation becomes, the more AI questions traditional concepts of art.

Connection

Most doctors became doctors because they wanted to connect with people in order to heal them.

Today, they often act like overpaid bookkeepers: taking in and spitting back data, prescribing drugs, adjusting doses, ordering tests.



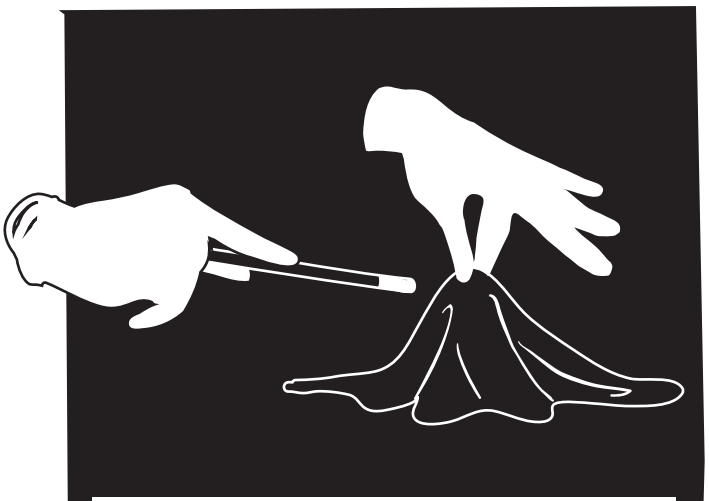
And it's still only retrospective, error-prone knowledge.

But we cannot connect to doctors who struggle to keep up with messy data from disparate connections. And they cannot connect to us.

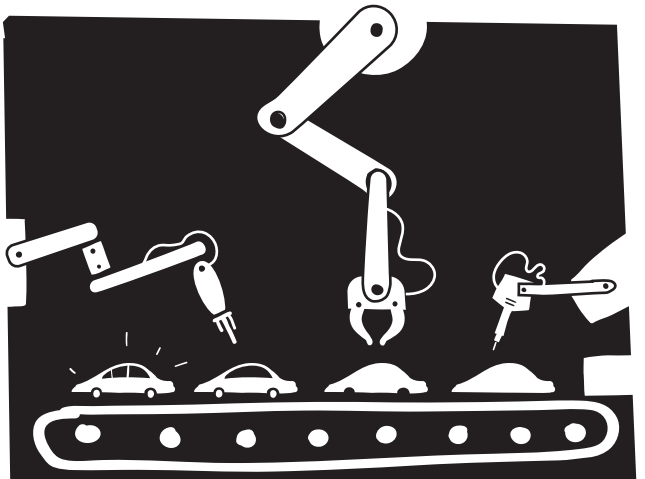
AI can support proactive, individualized strategies.

Our doctors could get to know us better, having the time to learn how a disease uniquely affects us and educate us in the right way.

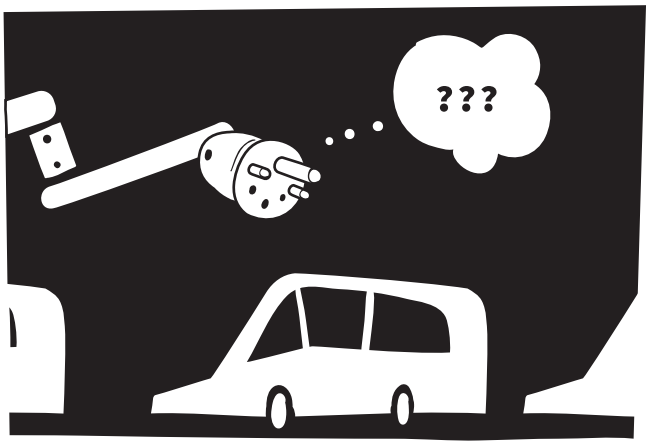
New Opportunities



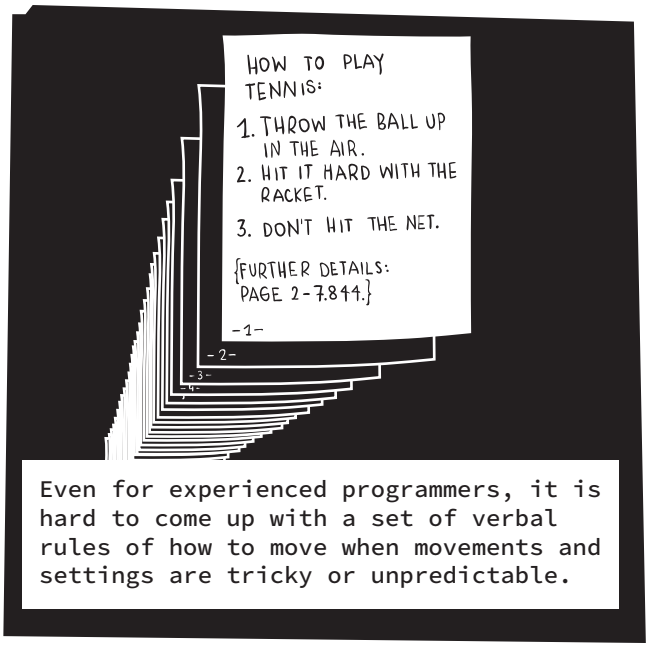
AI allows for fascinating new opportunities. Teaching robots without a single line of coding, for example.



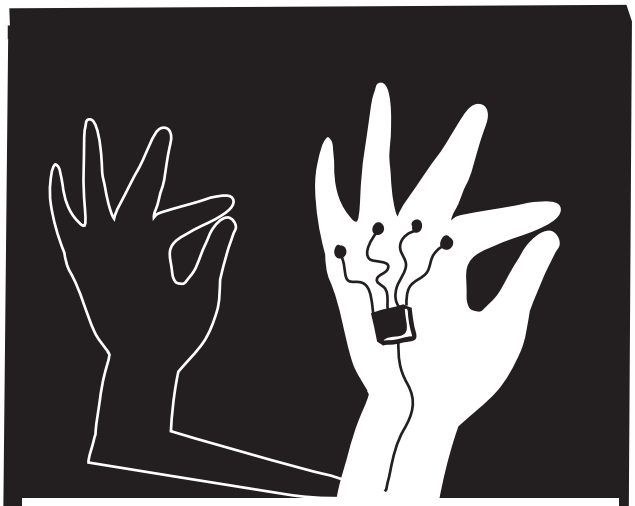
Robots solve complex tasks today – but these tasks are deterministic. At any point of time, you know in advance where your robot needs to be.



Every time a task or location changes, the robot`s software must be re-programmed. This is time-consuming, expensive and difficult.



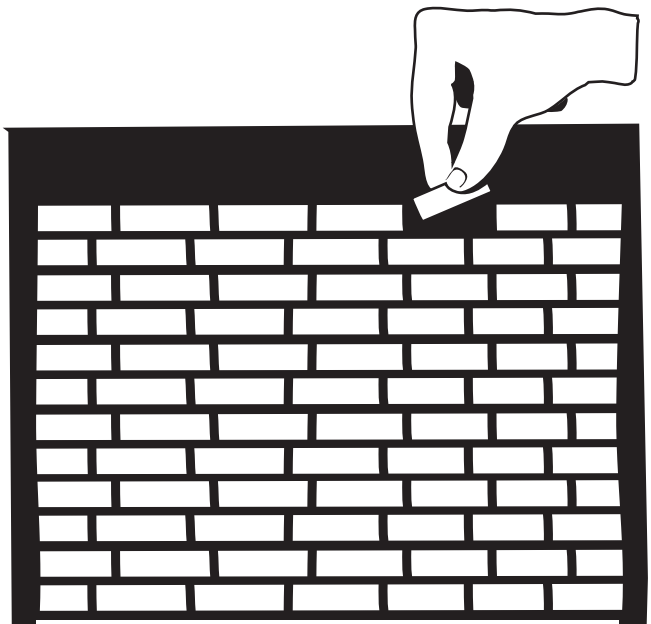
Even for experienced programmers, it is hard to come up with a set of verbal rules of how to move when movements and settings are tricky or unpredictable.



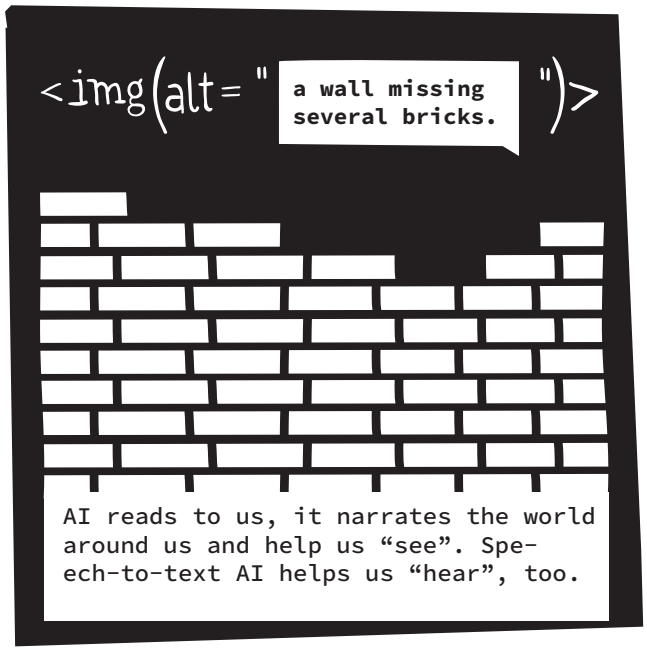
AI now enables us to teach robots how to move, either together with the robot, or, with jackets and gloves containing sensors.

From the recorded example-movements, automation scripts can be created and optimized – without us having to write complex code. Fantastic!

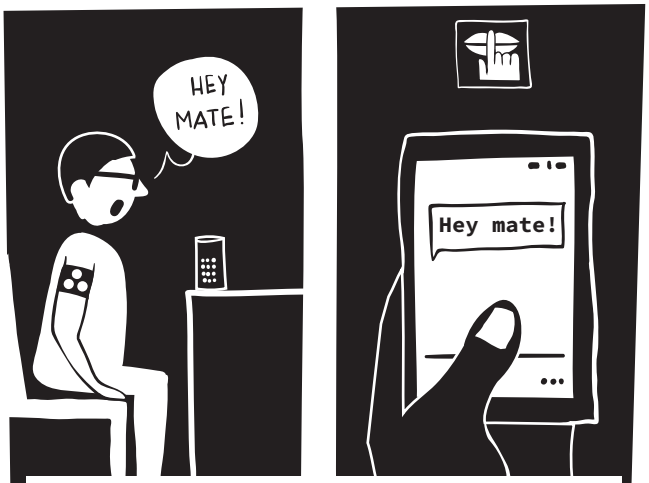
Inclusion



AI is also about helping us, about improving inclusion and our well-being, by removing barriers.

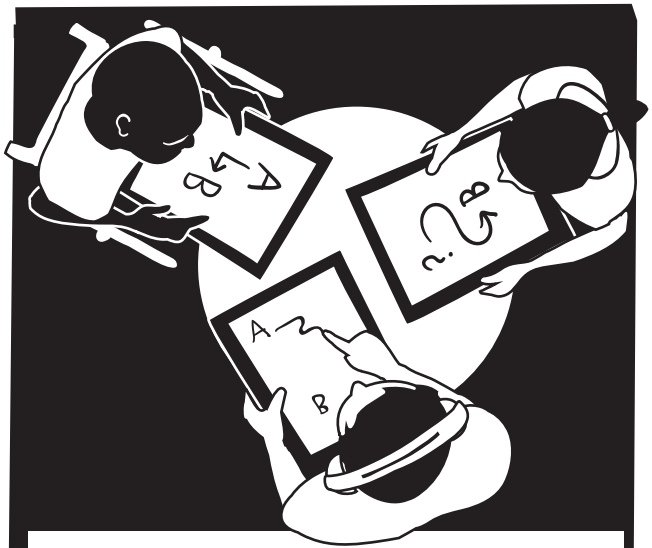


AI reads to us, it narrates the world around us and help us “see”. Speech-to-text AI helps us “hear”, too.

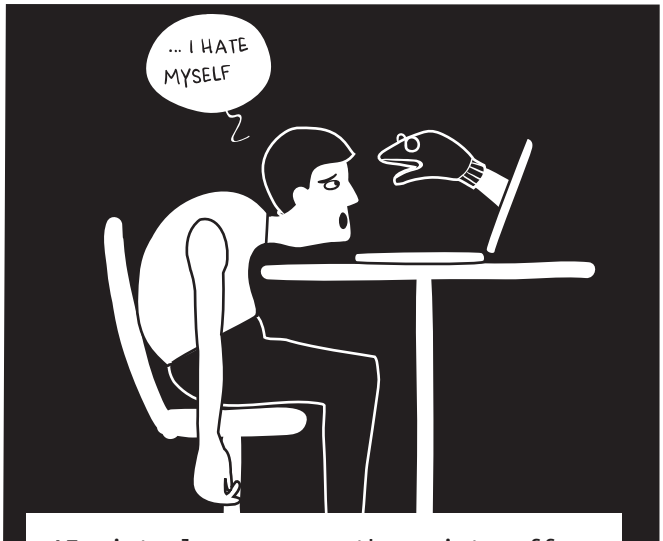


AI helps us type (with words) or talks to us. Users of all ages are adopting virtual assistants because it is so simple to learn how to handle them.

Smart home devices help us do things easily around the house and live independently.

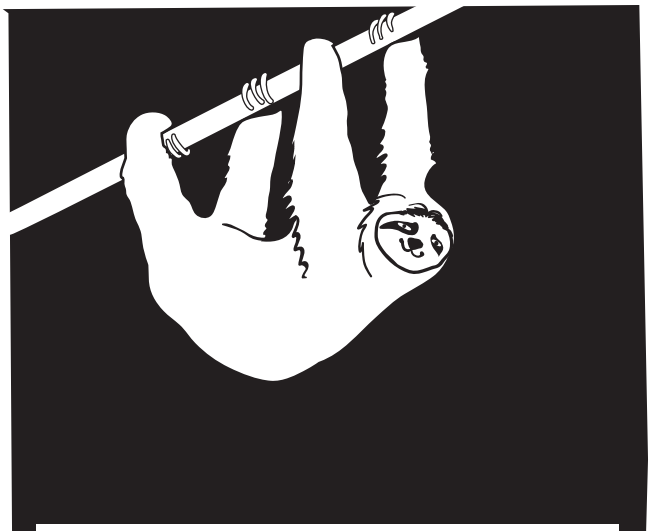


In the classroom, AI can identify individual challenges and offer more personalized approaches.

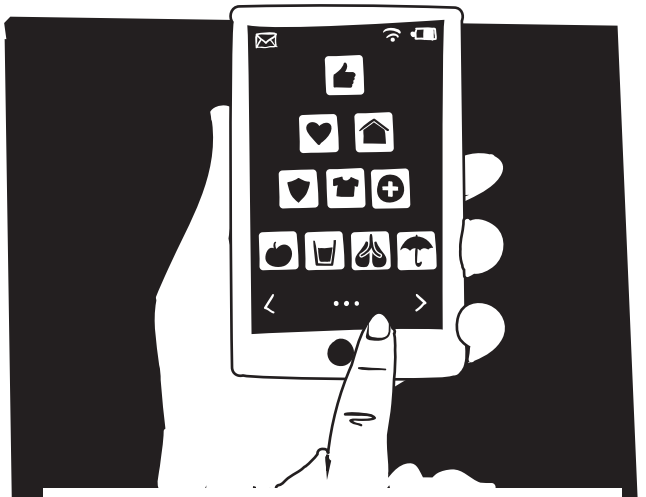


AI virtual nurses or therapists offer 24-hour-support, or someone to talk to in case we are shy.

Comfort



AI satisfies and reinforces our desire for comfort.

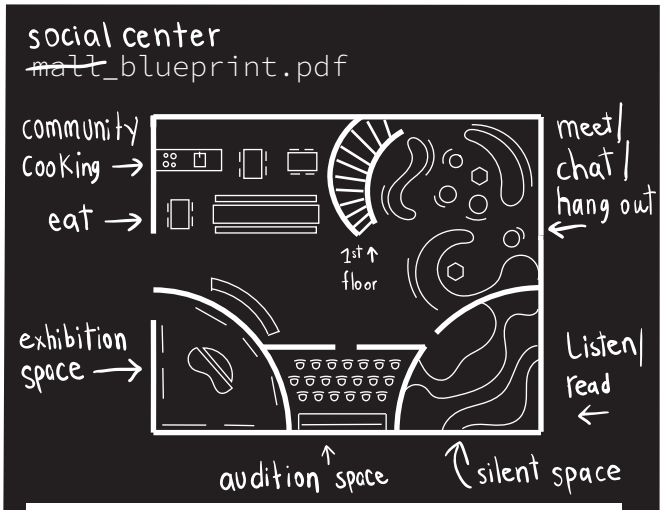


Almost all answers to our consumer, communication or information needs are just a mouse click or an app away. And most of the time, AI is involved.

It is tempting not to have to leave our couch at all, no matter what we want to do: eat, work, chat, watch a movie, listen to music...

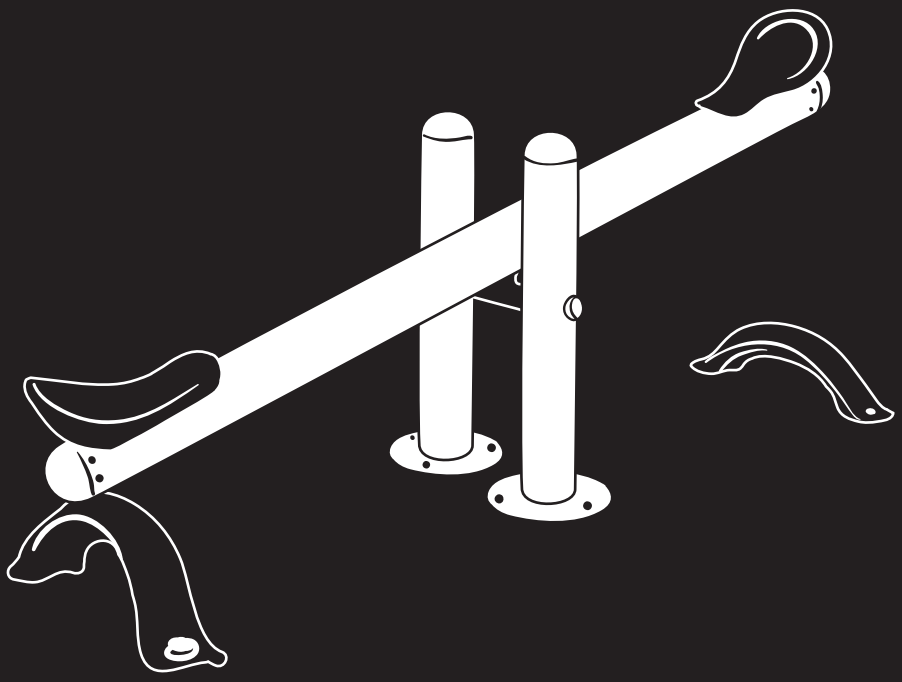
'Pre-AI'-institutions such as shops, local transport, restaurants, libraries, or doctors must react to our new convenience.

All institutions with predominantly analogue offerings are undergoing a tremendous process of change. But it might be worth it.



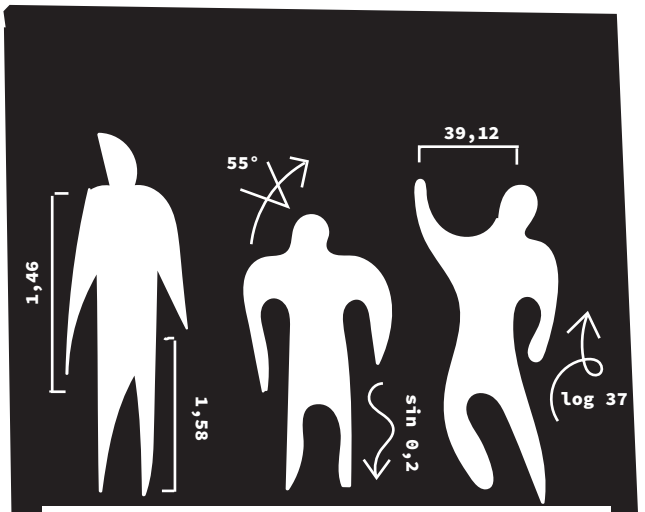
It is precisely these institutions that are social places where we can come together and exchange ideas. Where we can decelerate. "Waste" time.

Risks

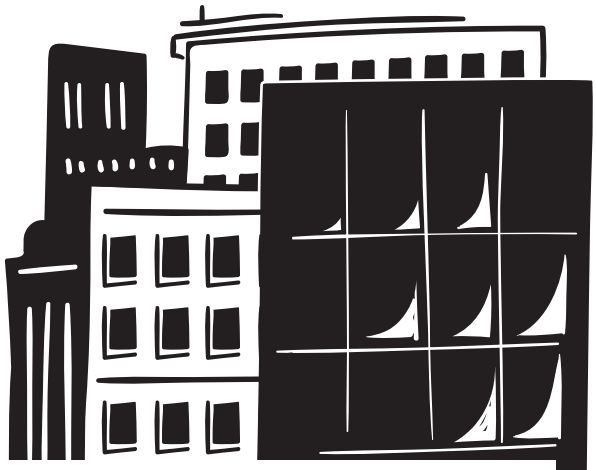


Surveillance

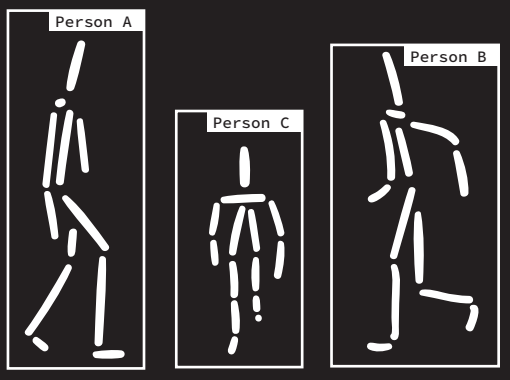
AI makes monitoring people much easier. Not only via our words or facial expressions, via our consumer behavior or interests.



But also, via our movement patterns. Each one of us moves differently. Our movement patterns are unique.



Weak radio waves can penetrate walls, but our bodies reflect them. Using this data, an AI can be trained to identify our movements.

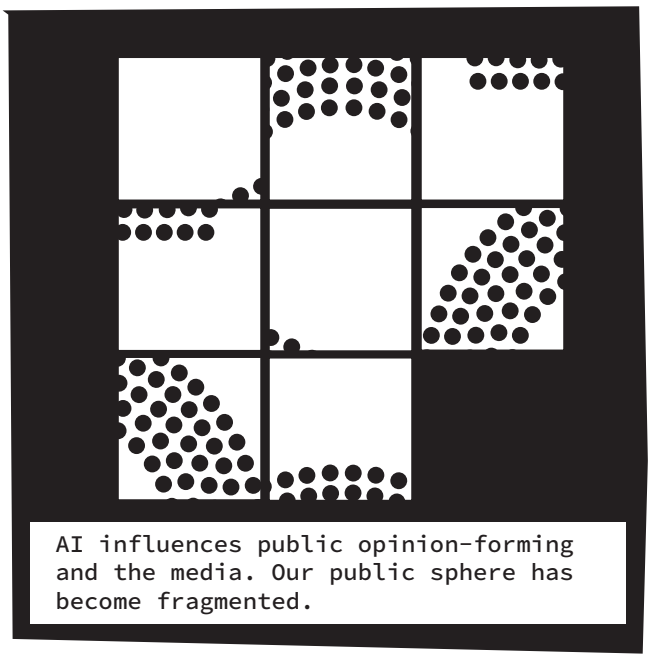


The AI can translate our movement patterns to little stick figures. Once registered, the AI can even identify us behind a wall.

That means the AI does not only know where we are. The AI can also distinguish what we are doing, whether we are standing, or eating.

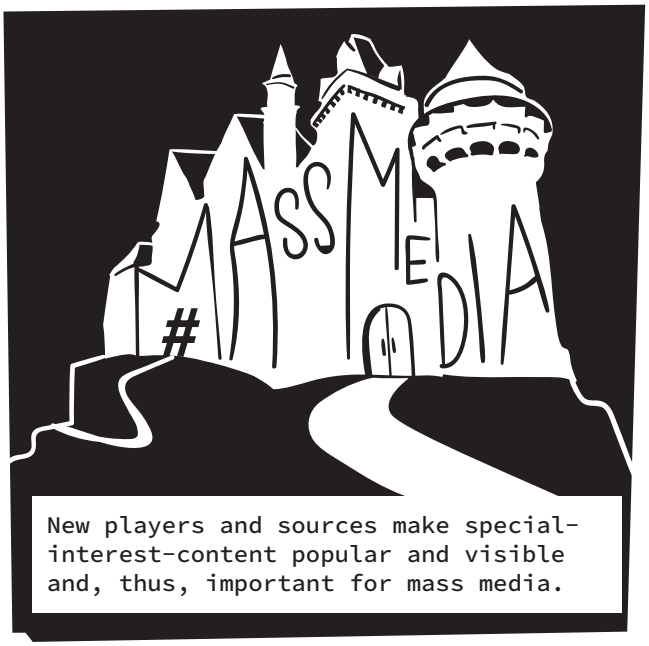
It really comes close to magic. Hello, Harry Potter! And hello, surveillance state.

Opinion-Forming and Media

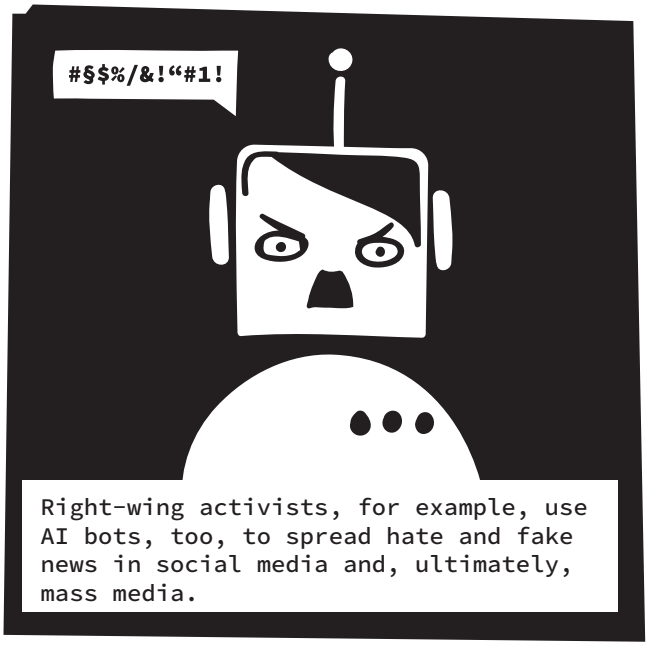


AI influences public opinion-forming and the media. Our public sphere has become fragmented.

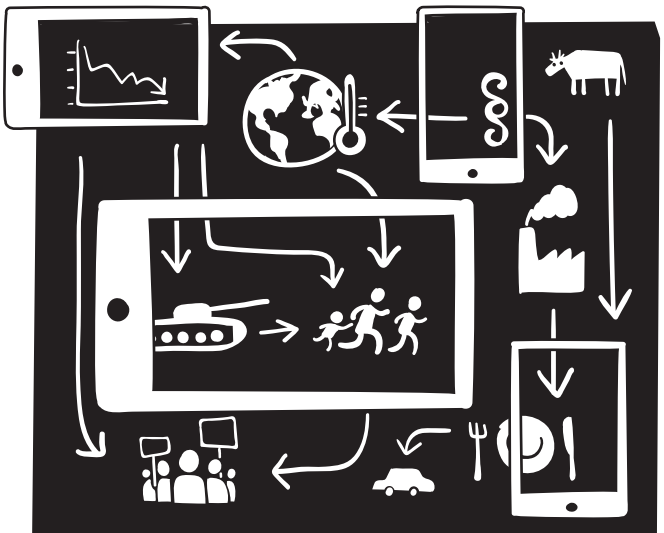
Borders between private and public communication are blurry. User-generated content is rich but polarized and often privatized on closed platforms.



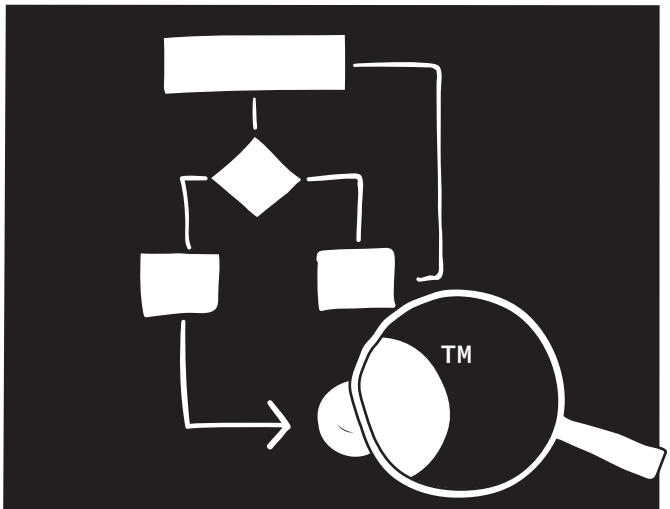
New players and sources make special-interest-content popular and visible and, thus, important for mass media.



Right-wing activists, for example, use AI bots, too, to spread hate and fake news in social media and, ultimately, mass media.



Social media-users receive AI-personalized content of political organizations, based on users‘ personality profiles.

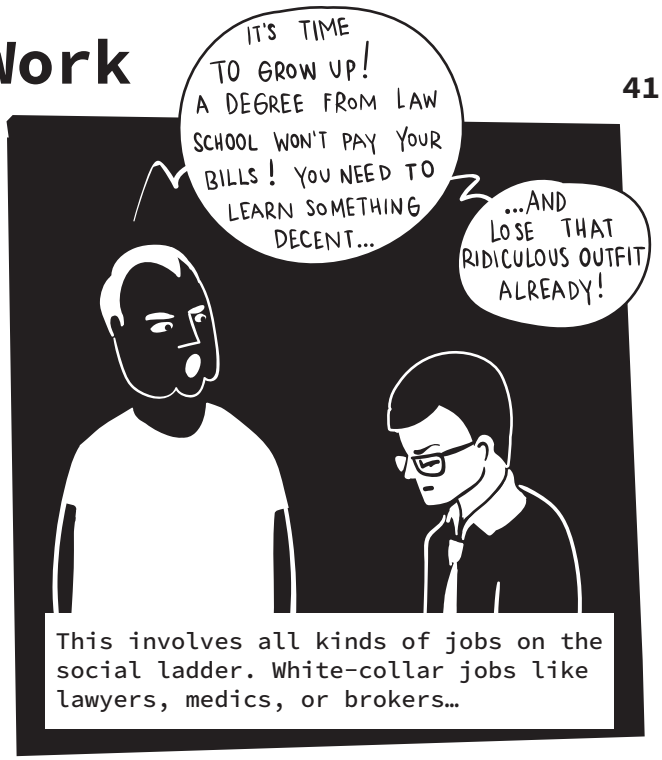


Could we, in turn, use AI to enable a better opinion-forming - and identify those who benefit from current AI tools?*

*Credits to Joseph Weizenbaum

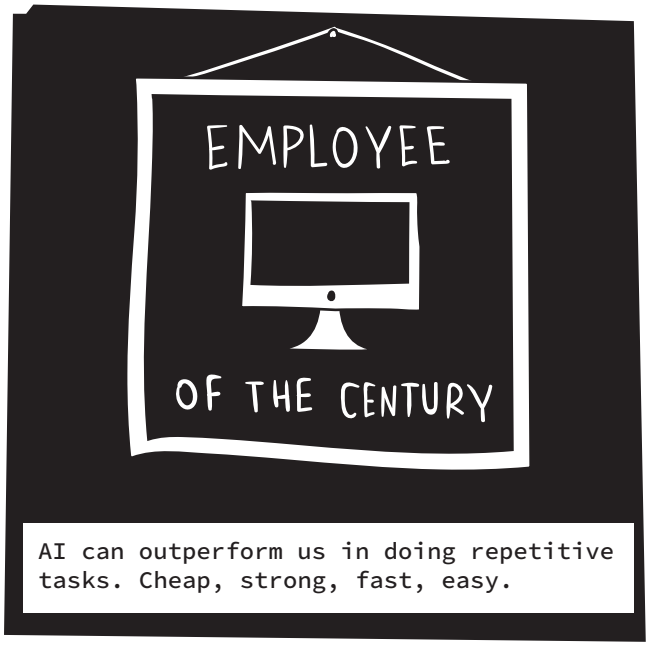
Future Work

The share of jobs at high risk of replacement by computers or robots has increased significantly.*

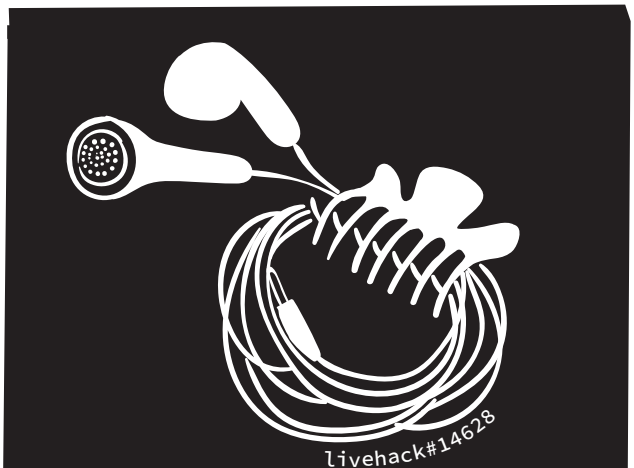


This involves all kinds of jobs on the social ladder. White-collar jobs like lawyers, medics, or brokers…

… as well as creative jobs like artists, chefs or journalists, or blue-collar jobs such as construction workers or drivers.



AI can outperform us in doing repetitive tasks. Cheap, strong, fast, easy.



We are better in understanding non-trivial, new situations, building relationships, creating context and meaning. Custom-fit solutions.

We are also needed as partners of AI: developing algorithms that work, supervising, repairing. Combining us with AI.

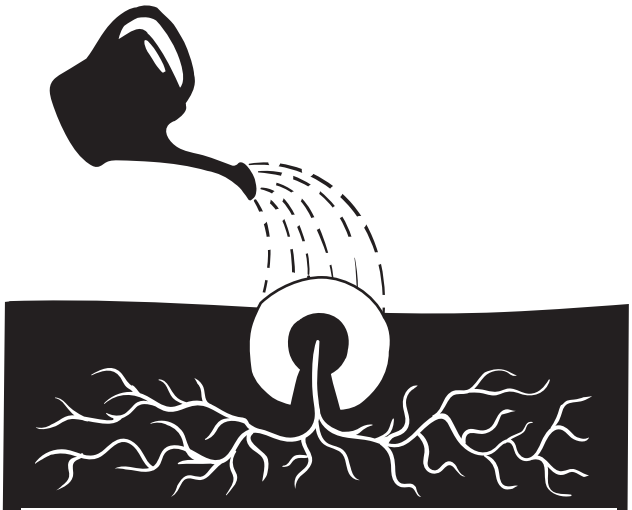
Data Security and Safety*

Our blind trust in AI providers is misplaced. We all know that the amount of data that we are implicitly or explicitly forced to leave behind is too great.

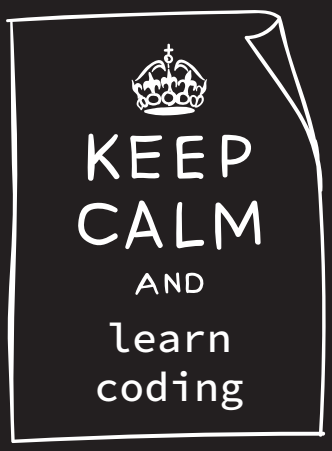
Since AI needs tons of data, we need to improve our data security and safety. A broad campaign, starting with, e.g.:

The “data letter”, an obligation for all companies and authorities to tell us what data they store about us and how to view, correct and delete it;**

Penalties for data outflows for system operators, and an obligation for connected devices to declare the frequency of the security updates (incentives);



Permanent government investment in secure IT, e.g., open source components written and updated in secure programming languages;



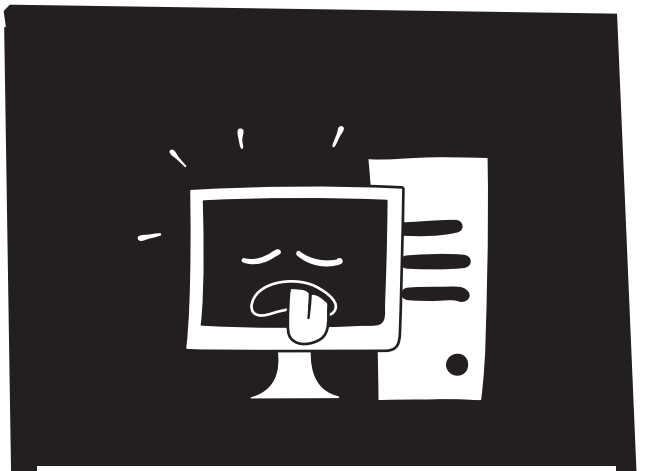
And: a widely available education in safe programming, along with educational, advisory and complaint services for the safe use of our digital systems.

*Credits to Chaos Computer Club (CCC)

**We think that the European General Data Protection Regulation is a very good start here.

Energy Use

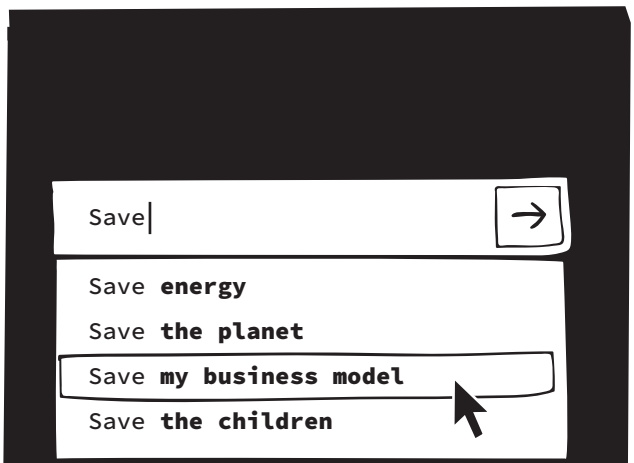
In fact, AI has huge potential to optimize energy use, by analyzing complex data, making forecasts, optimizing processes via brain-like algorithms.



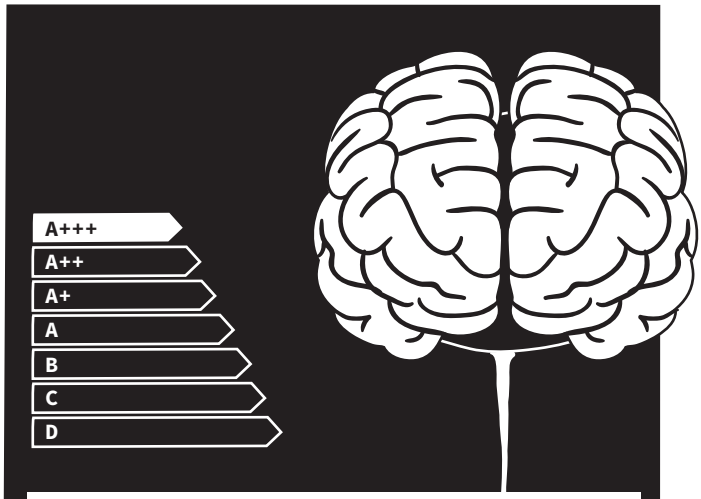
But conventional hardware was not designed for AI, hence it needs much more computing power, much more energy, than our brains do.

An AI supported translation service, e.g., DeepL, can handle 5,1 quadrillion operations per seconds. But that means masses of computing power and data.

Today, data centers use more energy than some countries, e.g., Iran.* In 2018, we had 33 Zettabyte digital data per year. By 2025, we'll have 175.



One of the most worrying forecasts says data centers will use 8% of global energy in 2030. The big internet firms bet on renewable energies.

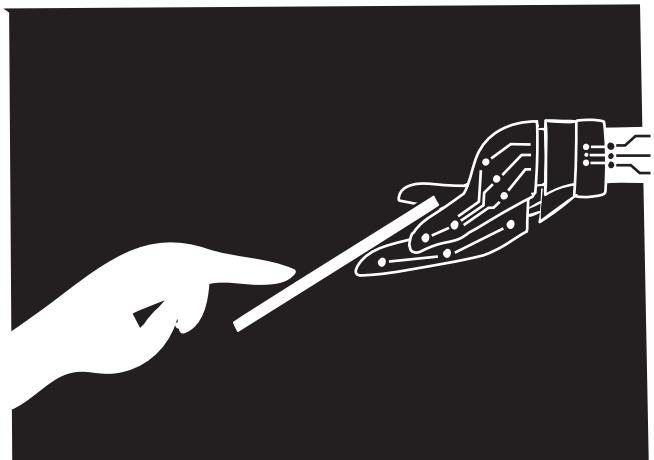


In short, our brains are far more energy efficient than our best computers - and we still do not really understand how.

*e.g., https://www.nature.com/articles/d41586-018-06610-y or https://www.datanami.com/2018/11/27/global-datasphere-to-hit-175-zettabytes-by-2025-idc-says/

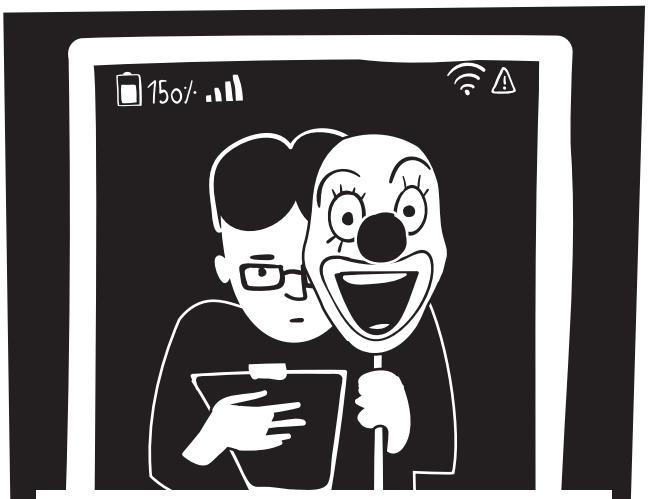
Outlook

Overall Human-Machine Intelligence



We mainly interact with AI via our smartphone. A proprietary marketplace for countless uncurated applications (=platform economy).

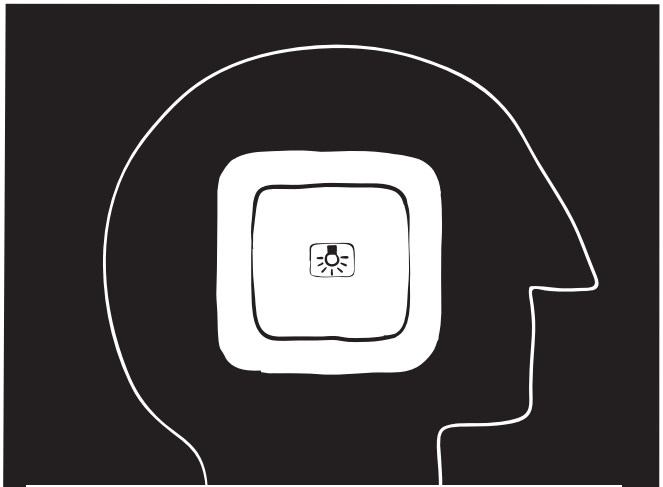
On the smartphone, we use AI basically for entertainment (image recognition), communication (language and translation) and information (e.g. google).



Unbeknownst to us, AI improves performance and battery life, too. And: It analyzes us, its users.

Up to date, there is no smartphone that is especially good at helping us get better ideas or interpret information. There is no interface for that either.

The development budgets are driven by numbers of purchase. In turn, our purchase decision is based on entertainment and communication values, and the design of the device.

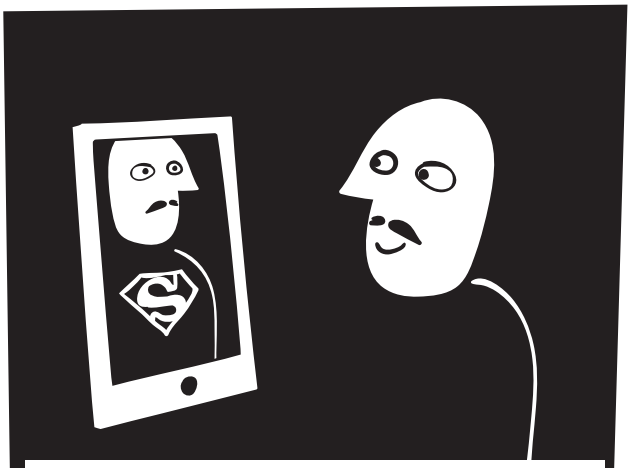


But couldn't we also develop a smartphone that makes us more creative, more intelligent? That understands like us? Really augment us?

Feminism

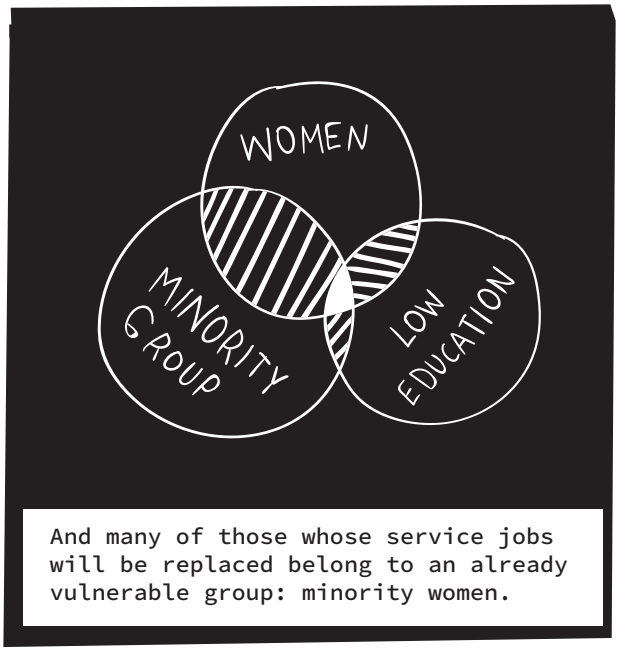
The contribution of women to AI is usually underestimated, especially concerning the democratic applicability of computing.

They were the first computers, actually: running calculations in the first information network of the world.

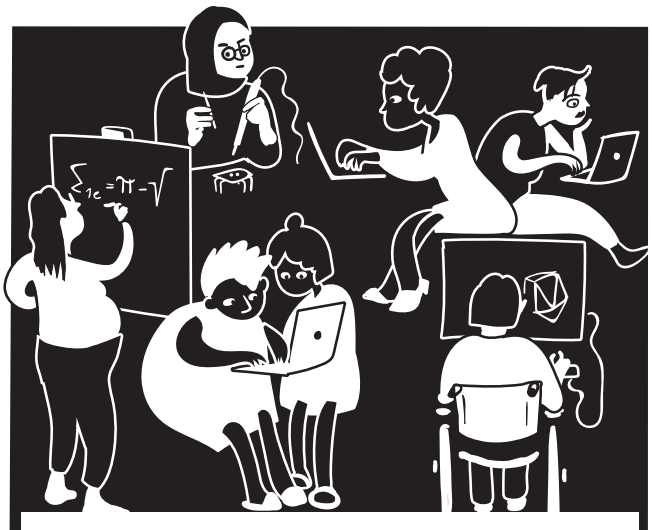


What we fear is not an AI-takeover. We fear scientists' homogeneity leading them to (finally!) „create" intelligent beings - in an egocentric way.

In an AI world, where „female" service robots are „hot" and submissive, how can children learn to treat women with respect, with dignity?

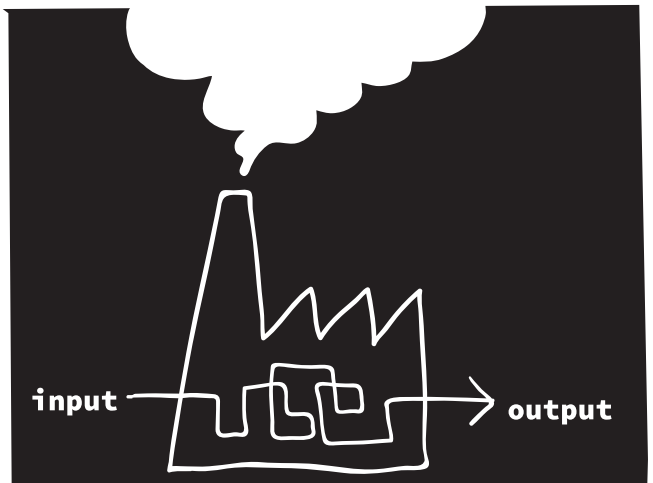


And many of those whose service jobs will be replaced belong to an already vulnerable group: minority women.



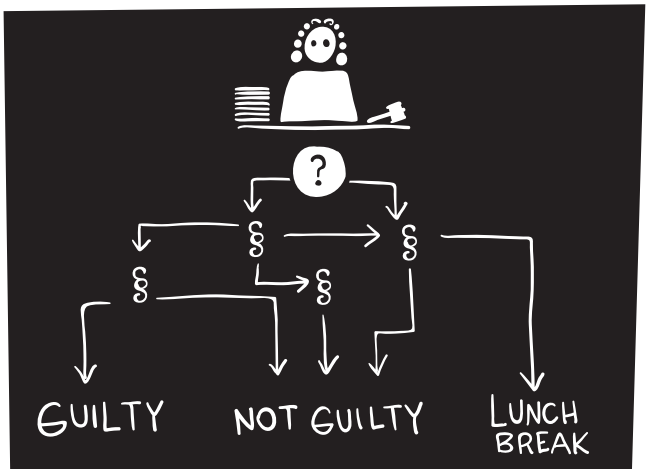
We need (different!) women to participate in the development and use of AI. Otherwise we'll just reproduce patriarchal structures.

Digital Capitalism*

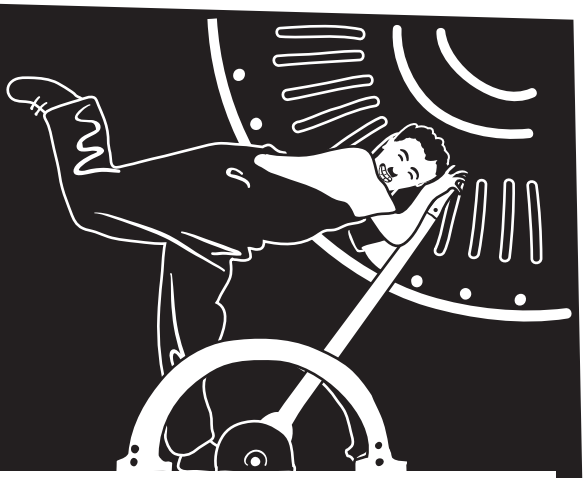


Algorithms have always been an integral part of our modern capitalist societies.

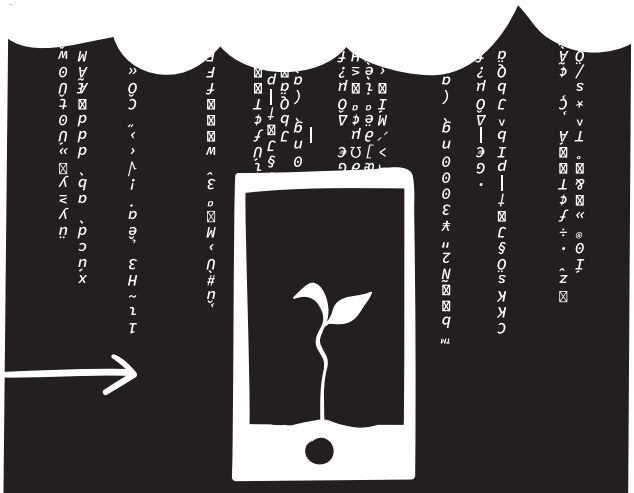
The idea of objectiveness, general abstract rules, quantification, de-personalization and the concept of equality are characteristics of modernity.



Max Weber, e.g., pictures the judge as an automation who processes concrete cases (data) based on an algorithm, namely the law.



Marx' workers are an appendage of the machine, alienated from the spiritual potencies of the capitalist working process.



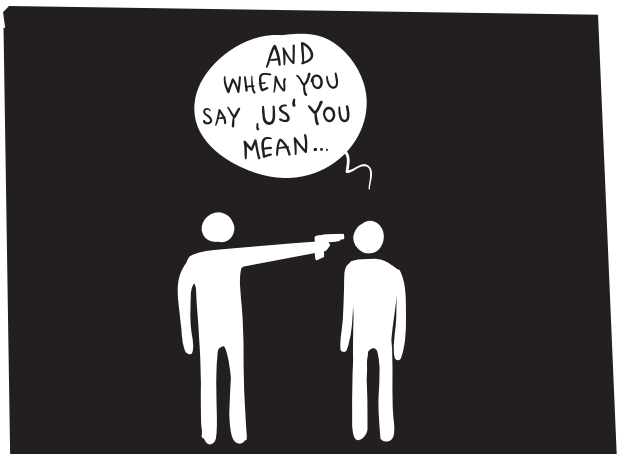
Digital capitalism is the ground on which AI thrives. The central paradigm is - instead of production and sale - the collection and use of data.

Since today's AI is largely incomprehensible to us, we need to regulate and shape AI as a public service and snatch the omnipotence over AI from the few dominant, digital companies.

*Credits to Tom Fleischmann

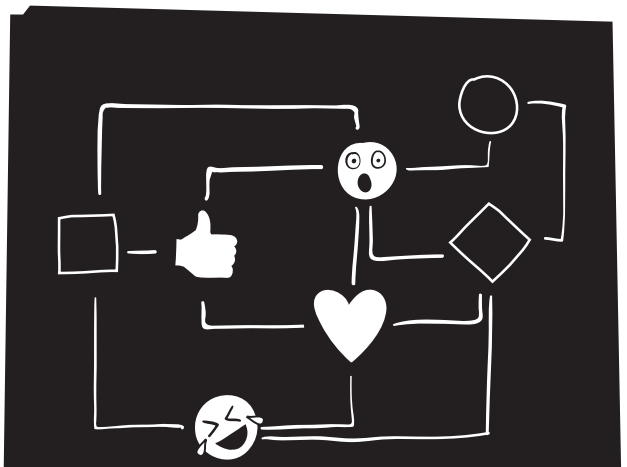
ART: Accountability, Responsibility, Transparency*

Throughout the world, we share a growing awareness: We need to make AI safe, beneficial and fair for us.

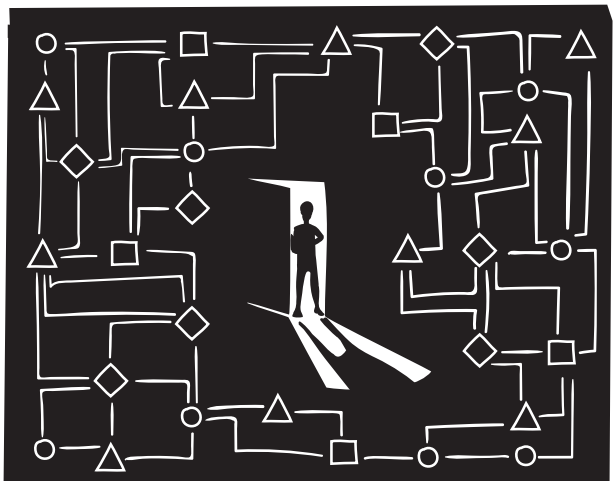


This requires the participation and commitment from many of us. It means training, regulation and awareness in 3 equal pillars:

Accountability is the concept that AI should be held responsible for the results of its algorithms.



This includes our *responsibility* to develop a framework for AI that incorporates our values.

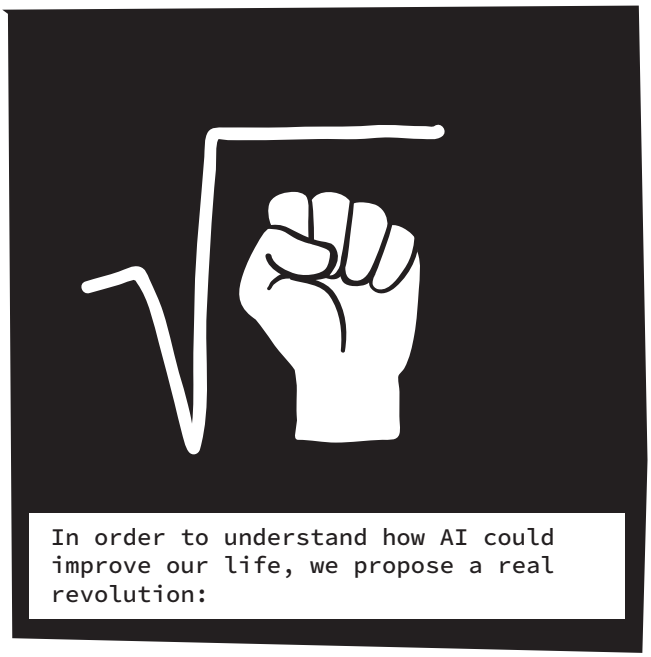


Transparency refers to the need to describe, inspect and reproduce the AI algorithms and results, and to manage the data used, in a fair way.

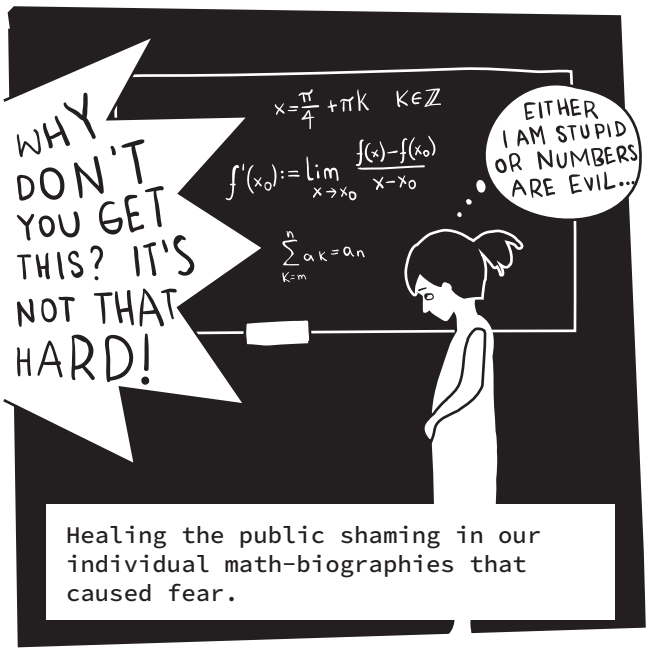
But let's not fool ourselves. For this ART of AI, we need a new and more ambitious form of governance.

*Credits to Virginia Dignum

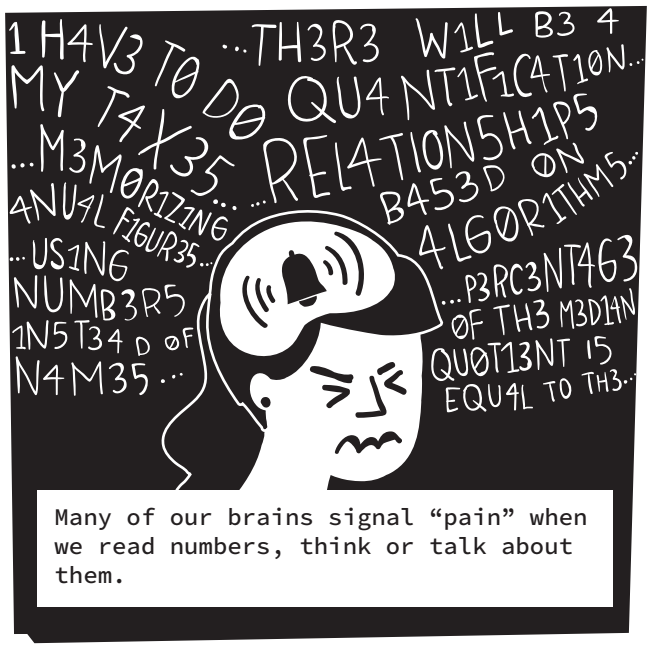
No Fear of Numbers



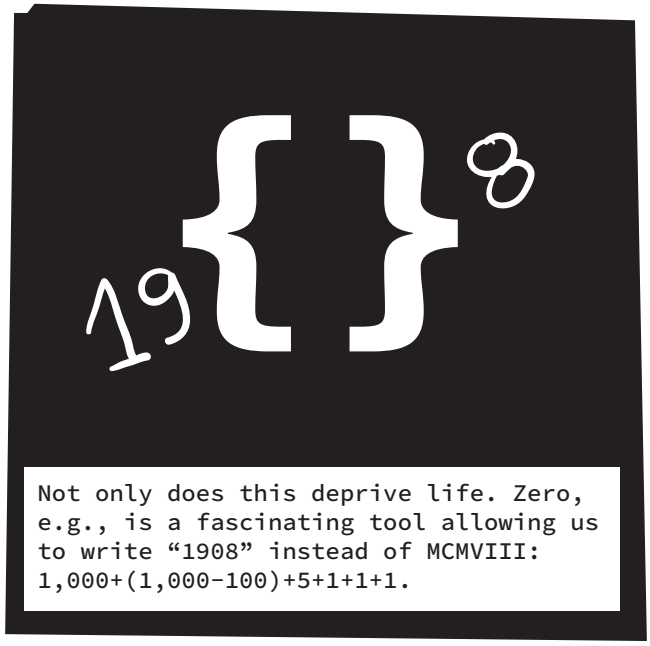
In order to understand how AI could improve our life, we propose a real revolution:



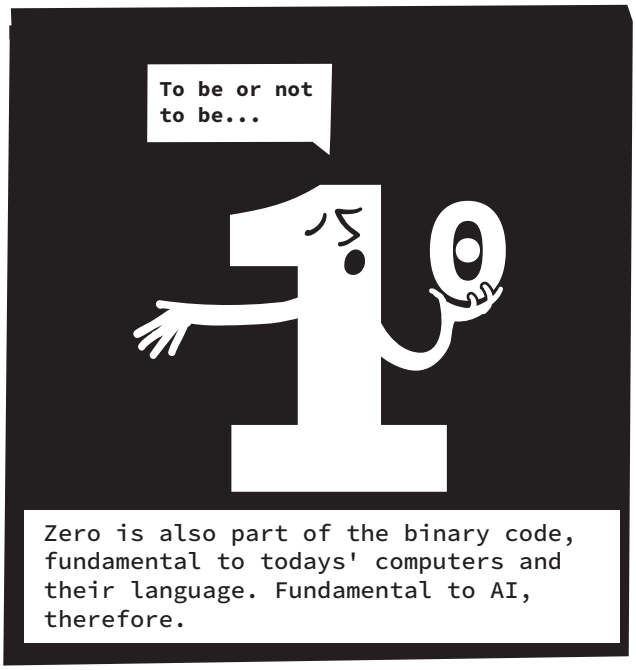
Healing the public shaming in our individual math-biographies that caused fear.



Many of our brains signal “pain” when we read numbers, think or talk about them.



Not only does this deprive life. Zero, e.g., is a fascinating tool allowing us to write “1908” instead of MCMVIII: 1,000+(1,000-100)+5+1+1+1.



Zero is also part of the binary code, fundamental to todays' computers and their language. Fundamental to AI, therefore.

With improved “math-esteem”, more of us could and should discuss chances and risks of AI in our lives.

Social Utopias with AI

All in all, AI today is not Skynet, HAL9000, Wall-E or C3PO. We appreciate this technology, but we don‘t want to overrate it. For over 300,000 years we‘ve been hunting with spears; for less than ten years we‘ve been looking for our next song with the help of AI.
Surely, there have been revolutionary applications, especially in the field of machine learning, in past years. This has been helping us in many ways. However, it is always very specific, single tasks, the so-called “narrow” AI is helping us with. “General” AI would combine multiple intelligent functions and improve itself on its own. „Think“. „Want“.

Today’s narrow AI must still solve many problems in the area of methodology, technology, and resource consumption. But even with the use of this narrow AI, we keep wondering what a utopian AI could look like. What exactly would we want to use it for?

Technical progress has often promised to make the world a fairer place. For many of us, however, this promise has not yet been kept. Technical solutions cannot completely overcome the existing social injustice, while everything else remains as it is. If we look at it from a global perspective, injustices are a fundamental part of the societies we know.
But we do believe that technical solutions, including AI, can somehow function as a catalyst that initiates and influences changes within ourselves and within societies. An AI may not be able to resolve all injusti-

ces, but it can raise questions about how we want to live. Since we were little, we, and perhaps you, too, have dreamed of living in a better, fairer and friendlier world in which each of us has from the moment we are born approximately the same privileges and opportunities for well-being and fulfillment. (This, by the way, is what most of us would choose before we know whether we are born privileged. In retrospect, the privileged among us are often in favour the inheritance of privileges.)
AI could increase the chances and resources of the underprivileged among us. What could this look like? Some have already begun to gain initial experience with AI-supported application procedures, but they have not yet been perfectly successful. Whether AI can be of help here depends on the type of training data: If we train AIs on discriminatory data, they will make discriminatory decisions and reduce, not increase, the opportunities, and resources of the underprivileged.

Also, the protection of this sensitive data, human monitoring to avoid technical or human error, the possibility of gaining insight into decisions and the ability of intervention are some of today's challenges.
But let us think one step further. How can AI support us to articulate our needs and gather them at negotiating tables of society? Do we need to invent an intelligent unit of measurement - one that is not money - to quantify needs, costs, benefits? Can a digital platform be the right place to collect and evaluate them?
If, for example, a motorway was to be planned through a city, an AI could transparently document every single inhabitants' involvement and propose different solutions that work best for the city. Now think globally: imagine a world in which the social costs and benefits of a clean environment, a specific resolution of a conflict or improvement in health care are transparently documented and processed into solutions, which bring the greatest benefit to all of us. Somehow trivial, but given that maybe you, dear readers, and certainly we as authors belong to those who profit from the distribution of privilege, this could be a major step to overcome our privilege-blindness, and a way to learn socially responsible behavior.

Could AI furthermore be used to transparently document and reward the invisible work, that we do at home and the unpaid volunteerism or care work in non-commercialized places? This might be a real step towards gender equality. Also, imagine an AI that plays with set pieces of all constitutions to simulate and optimize the respective social effects. AI can give us a glimpse into the future when certain changes in the law are pending. Or it could even create fluid constitutions that - depending on current social processes - customize themselves.

For the long-term prosperity of societies, it is essential to have an independent media carried by free-thinking journalists who are impartial to economic and party-political pressure. Couldn‘t AI also be of help here? As users of the media, we could allow the use of our private data for socially meaningful research projects, for example for improving our transport systems in cities. In return, the media would receive the resources needed for free. This might guarantee truly independent reporting instead of the media getting their resources from companies that use their credibility on the one hand while on the other they undermine it by selling their marketing texts as editorial titles.

Moreover, AI could raise questions that confuse our self-image. Not necessarily by the actual tasks, but rather by the new existence of a recognizable intelligence next to the human intelligence. Just a thought.
We haven‘t yet talked about the potential of a wave of robotics and real automation, the time, and quality of life that this could bring us, the many strenuous activities that we wouldn‘t have to do anymore; think of the many underpaid people who are deleting traumatizing decapitation videos in social media channels…

We have also not yet spoken of the possibilities of effectively planning and optimizing an economic system with the help of AI. After some good ideas failed monstrously due to lack of suitable tools for flexible planning, maybe we are for the first time in history able to establish an economy that is not based on the exploitation of humans and nature.

Or is this vision making us create a creepy surveillance state? Why should the authorities always be well-meaning? How could we make sure they are?

We also didn‘t talk about the cyborgs, nor of a billion things that we couldn`t remotely think of. And even though a utopia has yet to be shaped, we are in desperate need of it. This will set the direction in which we are heading. But the first step has been made: What can AI help us with? Where do we have to be careful? What do you think?
Let your voice be heard and your point of view be seen.

Tbc.

Further reading

> **Ajay Agrawal, Joshua Gams, Avi Goldfarb:** Prediction Machines: The Simple Economics of Artificial Intelligence. *Harvard Business Review Press, Boston, Massachusetts, 2018*

> **Claire l. Evans:** Broad Band - the untold story of the women who made the internet, *Penguin Random House, 2018*

> **François Chollet, J. J. Allaire:** Deep Learning with R. *Manning Publications, 2018*

> **Jean-Noël Lafargue, Mathieu Burniat:** Das Internet. *Verlagshaus Jacoby & Stuart, Berlin, 2018*

> **Kai-Fu Lee:** AI superpowers: China, Silicon Valley, and the new world order. *Houghton Mifflin Harcourt, Boston, 2018*

> **Nick Bostrom:** Superintelligence: Paths, Dangers, Strategies. *Oxford University Press, 2014*

> **Shoshana Zuboff:** The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power: *Profile Books, 2018*

> **Stuart Russell, Peter Norvig:** Artificial Intelligence: A Modern Approach. 3. Auflage. *Prentice Hall, 2010*

> **Timo Daum:** Das Kapital sind wir: Zur Kritik der digitalen Ökonomie. *Hamburg: Edition Nautilus GmbH, 2017*

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In 30 years, will robots do all the unpleasant work for us? Or will they subjugate us to become submissive slaves? The debates on how Artificial Intelligence (AI) will change our lives move between these extremes. There is no doubt that the change will be dramatic. Maybe now is just the right time to start interfering.
This pioneering comic essay on AI invites you on an illustrated journey through the dimensions and implications of the groundbreaking technology. Discussing important chances and risks associated with AI, this work is a creative stimulus for insiders of the subject as well as an invitation for newbies to get informed and join the debate.

With a doctorate in economics, Julia Schneider appreciates data and code as tools for solving complex puzzles - and loves comics as a medium for telling complex stories. Coming from the opposite direction, artist Lena Kadriye Ziyal loves encrypting complexity with associations and thereby expands the meaning of a theme with her perspective.