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We Need to Talk, AI

A Comic Essay on Artificial
Intelligence



Dr. Julia Schneider
Lena Kadriye Ziyal

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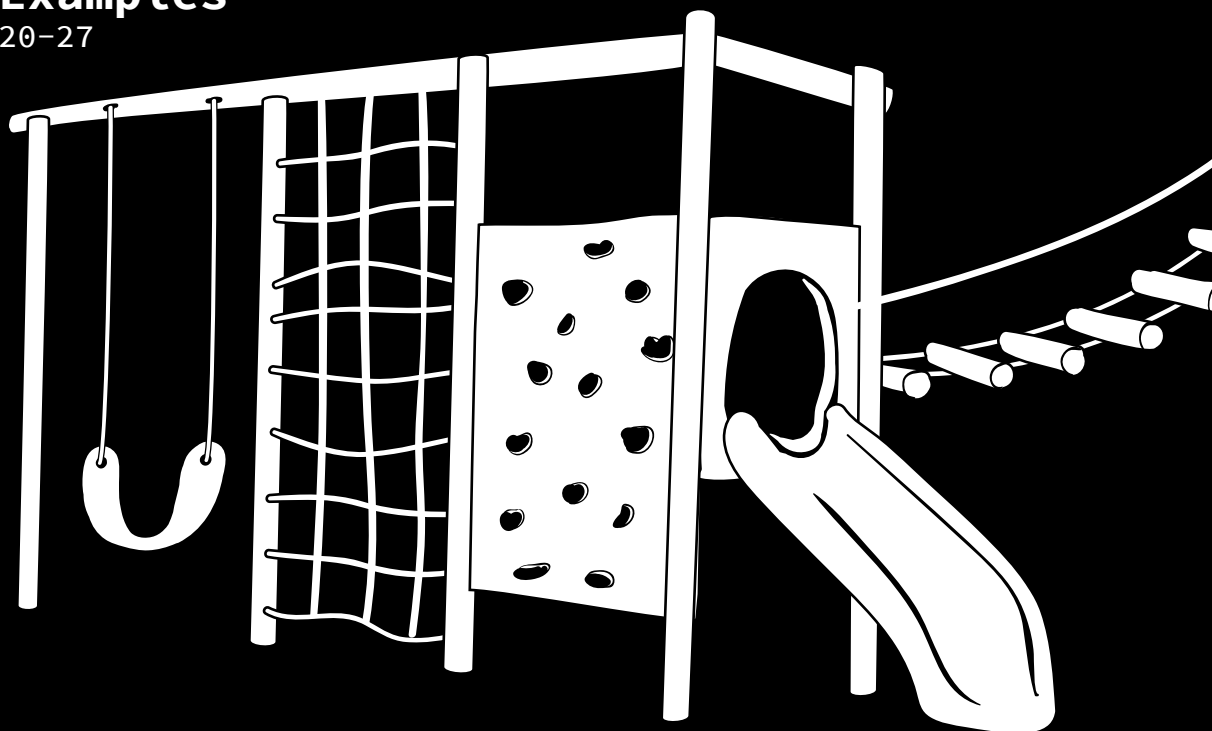
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This comic essay would not have been possible without the support of many people and places. We thank Eric, Knud, Katharina, Catalina, Sven, Oktai & Café *Roasters* with the *Kaffeekränzchen* Adem, Cem, Jule, Kathi, Luisa, Paul and Paula, the restaurant in Karstadt Hermannplatz, *infotext* and *INWT* for inspirations and exchange, Iris, Nele, Jonas, Maren, Patrick and Wolf as well as *Amerika-Gedenkbibliothek*. Many thanks also to all friends and family members who make our lives worth living, to what makes us humans creative, compassionate and cooperative – and to the AI-applications *Google Pictures* and *DeepL*, without which this comic would definitely be a different one. Which is kind of funny.

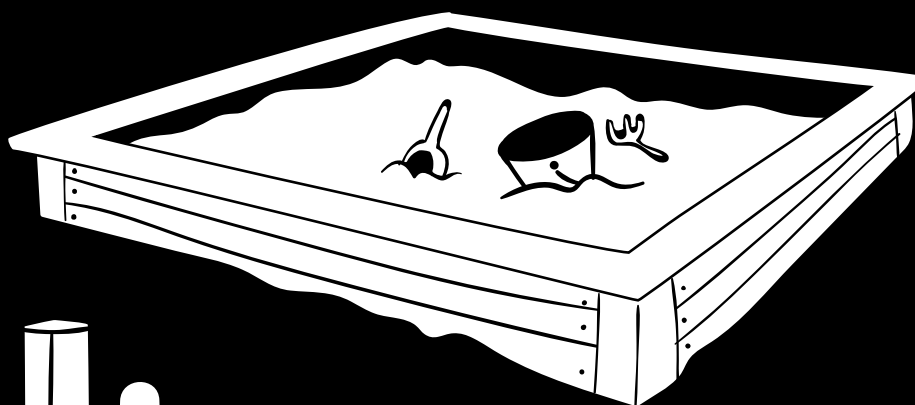
Examples

20-27



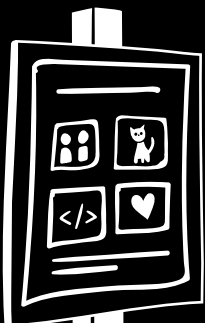
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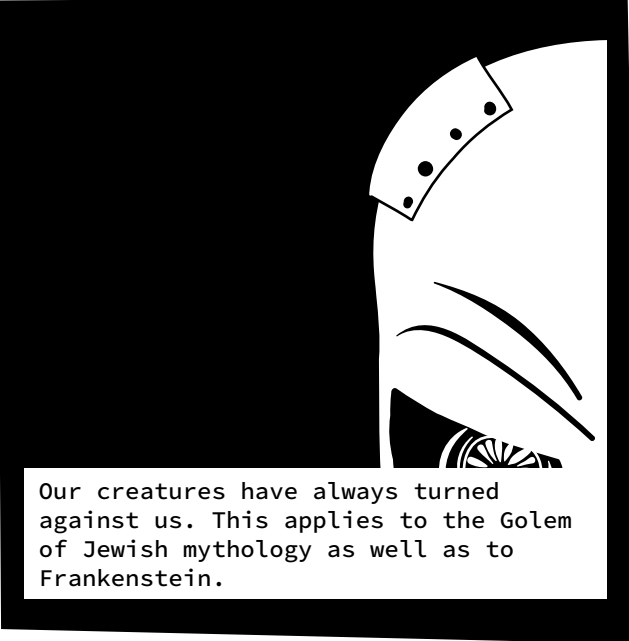
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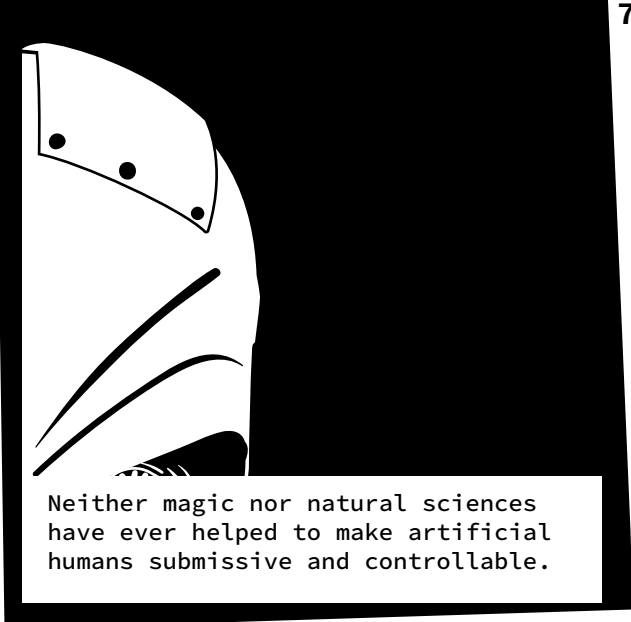
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28-36

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

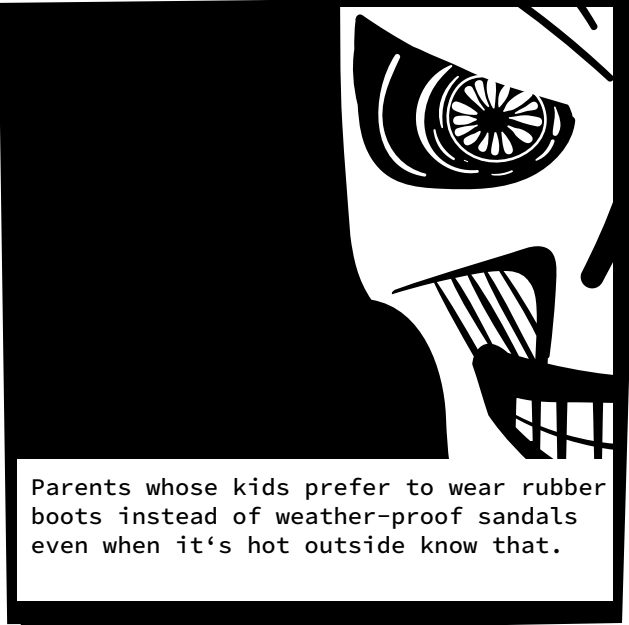
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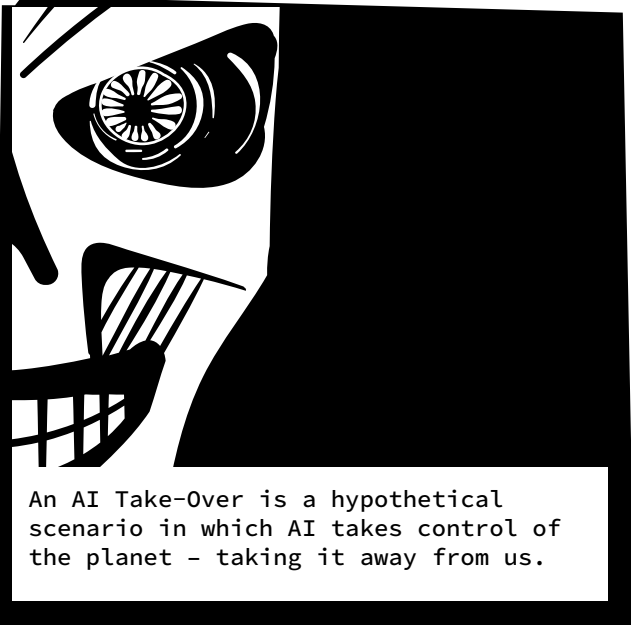
Our creatures have always turned against us. This applies to the Golem of Jewish mythology as well as to Frankenstein.



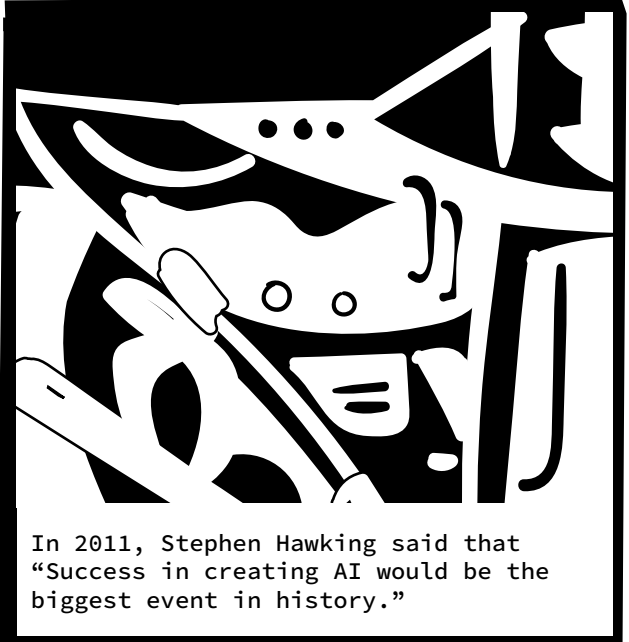
Neither magic nor natural sciences have ever helped to make artificial humans submissive and controllable.



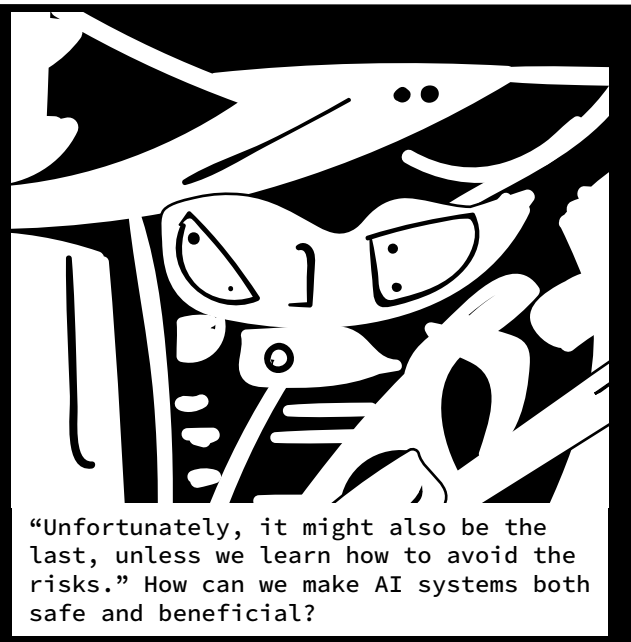
Parents whose kids prefer to wear rubber boots instead of weather-proof sandals even when it's hot outside know that.



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

8



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



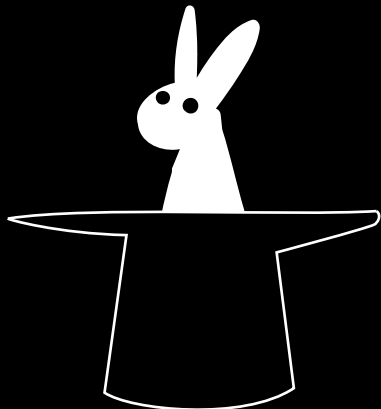
I love making sense of our world. I love to discover patterns in data, with code.

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296542315 21232589
66547895645251997462 54489

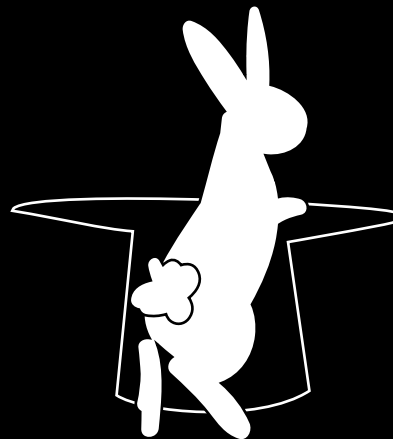
I love data's friendliness, their lack of strategic answering. If they are biased it's not their fault but ours.



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



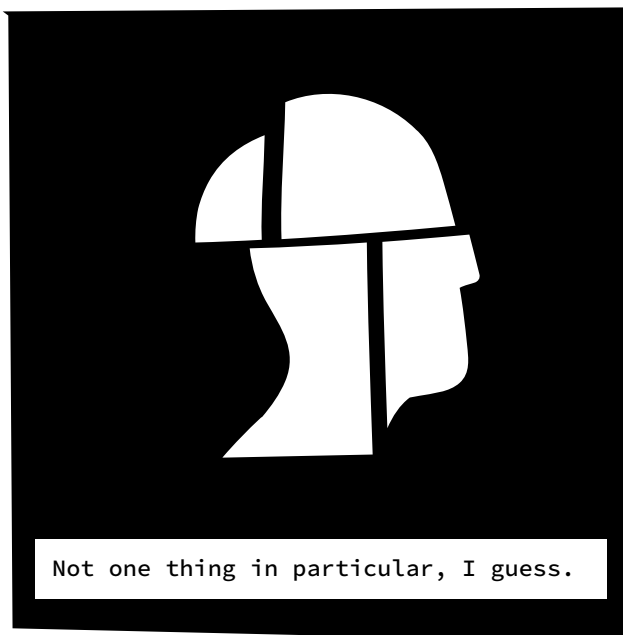
Artificial Intelligence (AI) might have the potential to help us find answers to problems we are not able to solve.



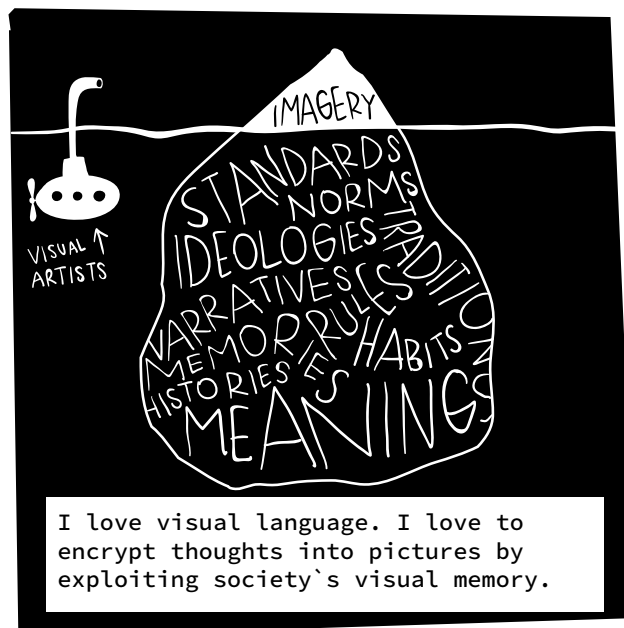
For that reason, we need to demystify AI. Therefore, I'm writing this comic. Let your voice be heard.

Who is Lena

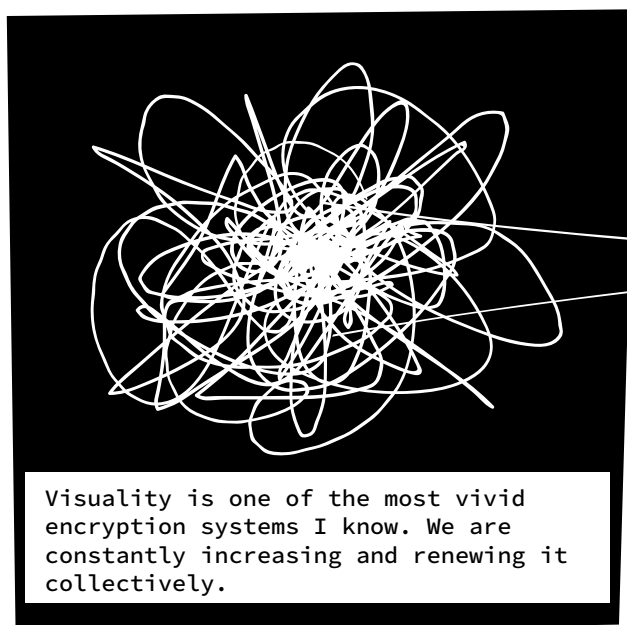
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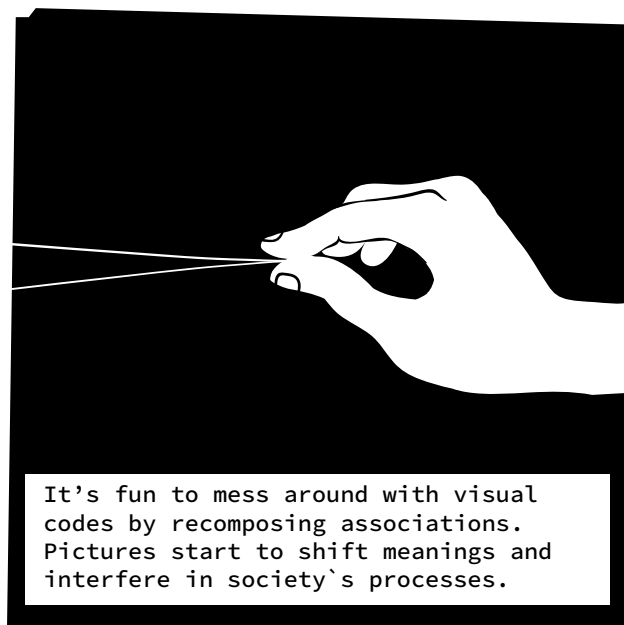
Not one thing in particular, I guess.



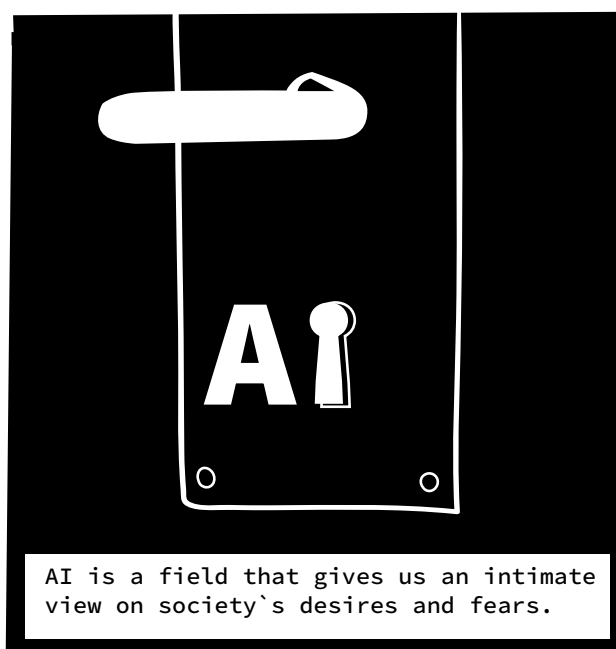
I love visual language. I love to encrypt thoughts into pictures by exploiting society's visual memory.



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

10

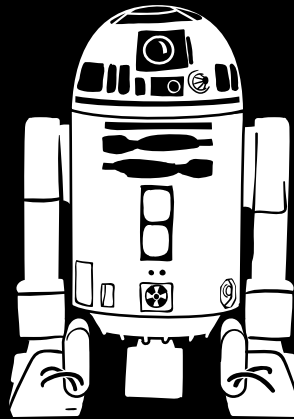
1927

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



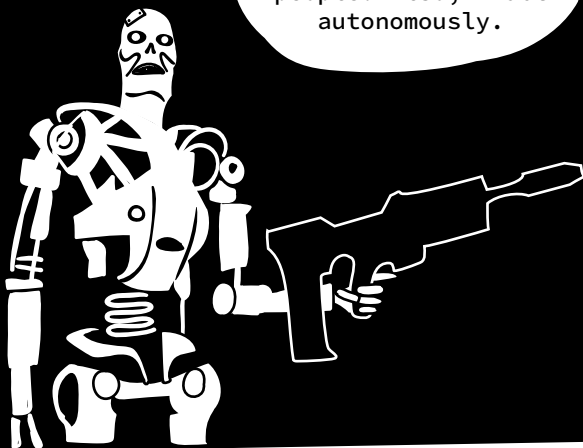
1977

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



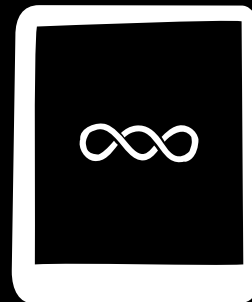
1984

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.



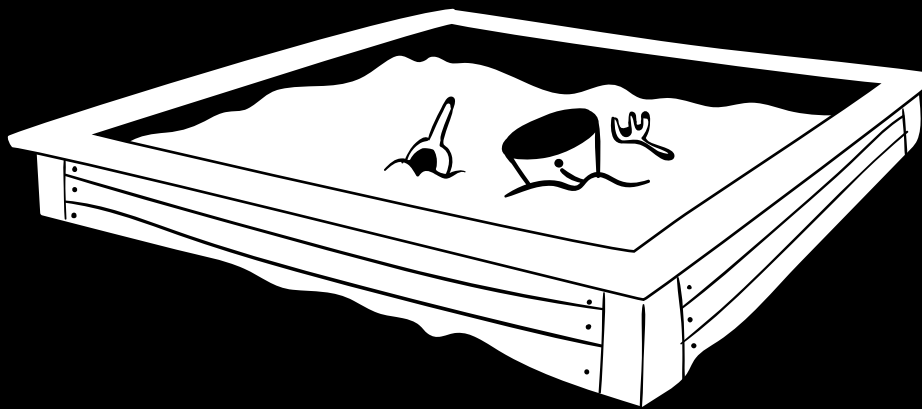
2014

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



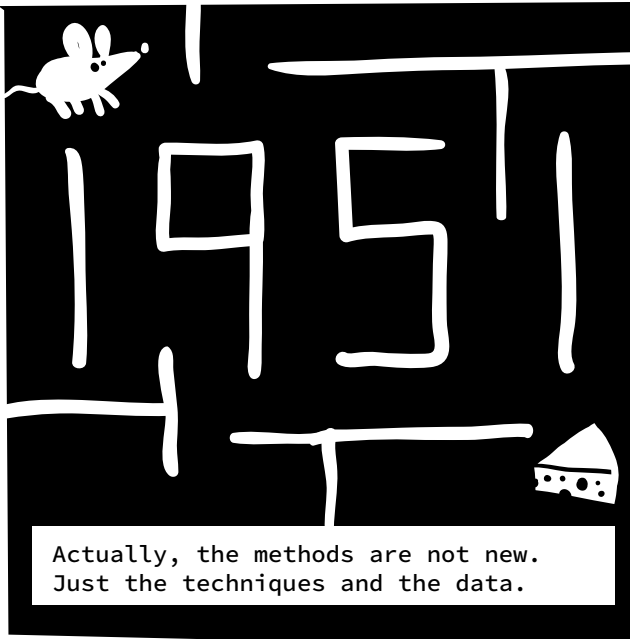
Seems, like we should not seek to replicate but to augment ourselves.

Basics

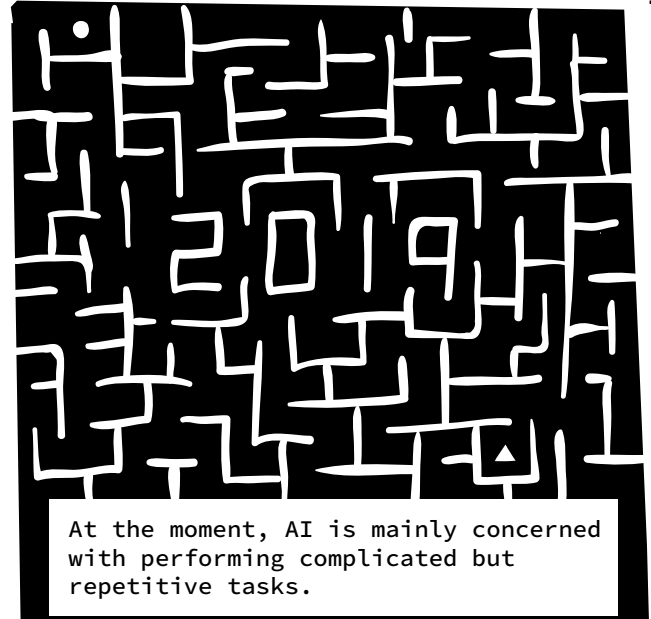


What is Artificial Intelligence?

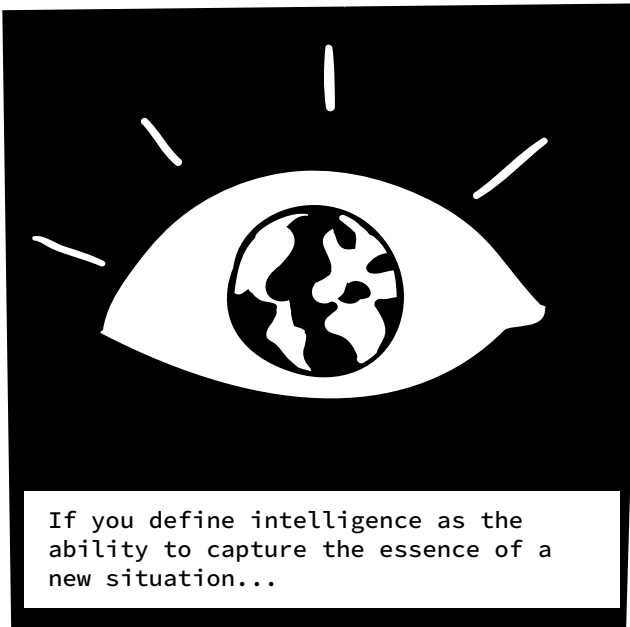
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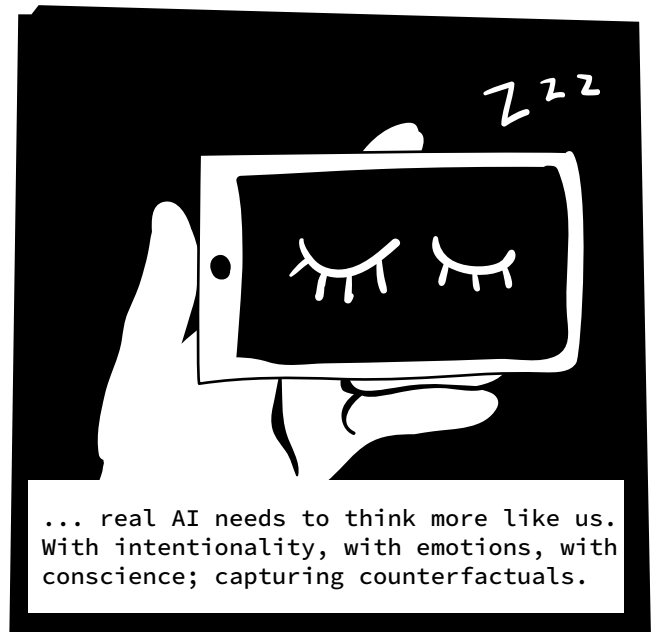
Actually, the methods are not new.
Just the techniques and the data.



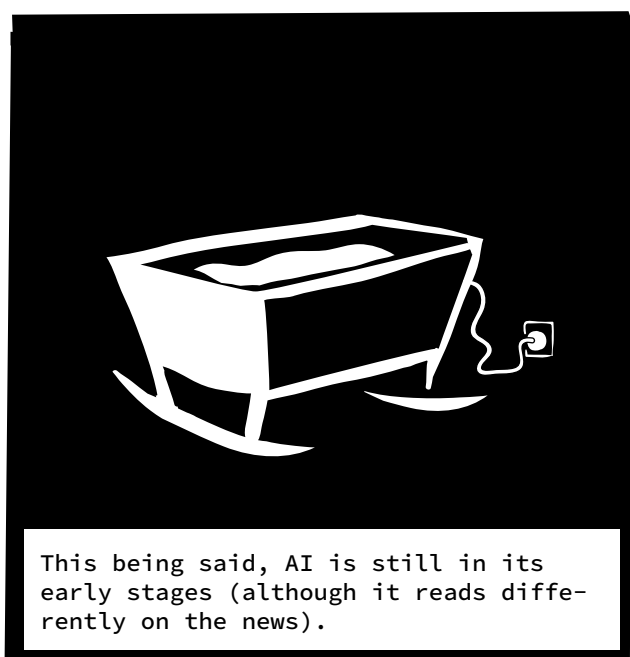
At the moment, AI is mainly concerned
with performing complicated but
repetitive tasks.



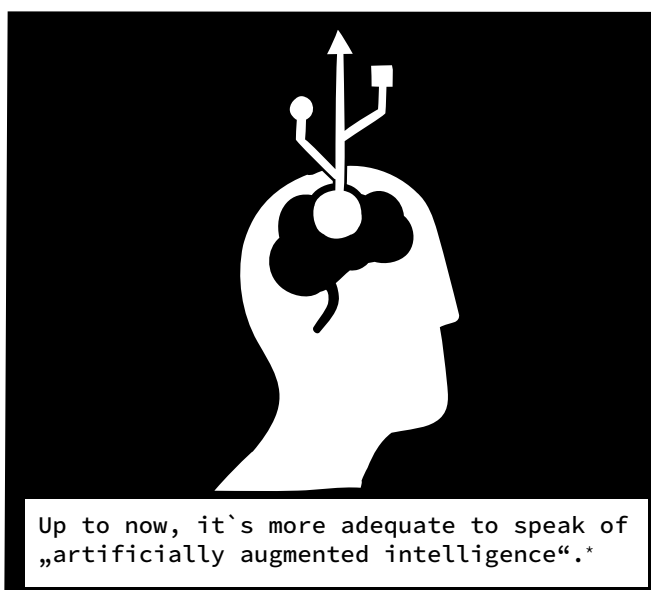
If you define intelligence as the
ability to capture the essence of a
new situation...



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



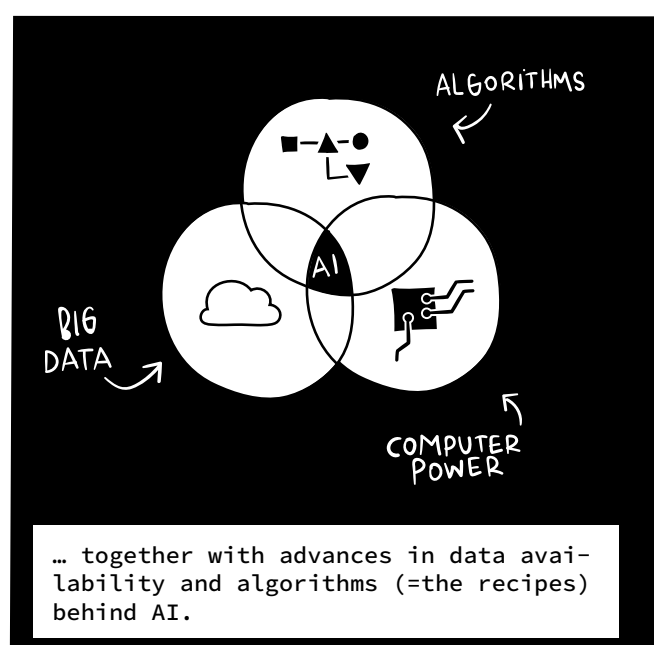
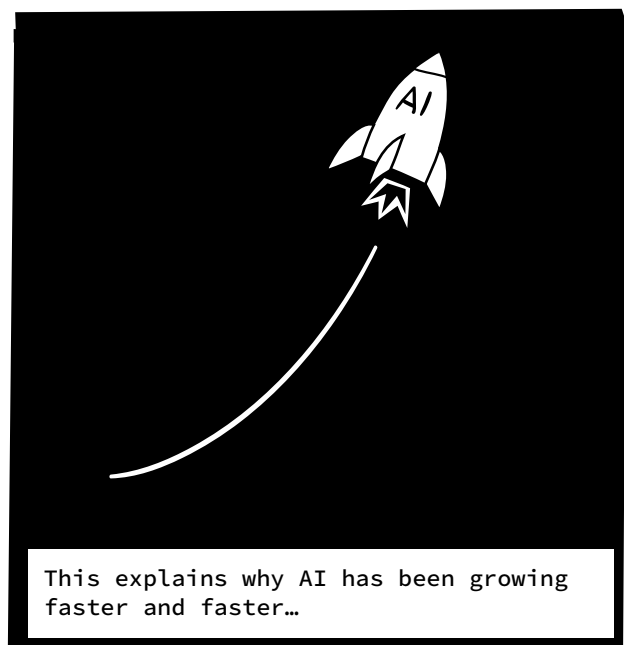
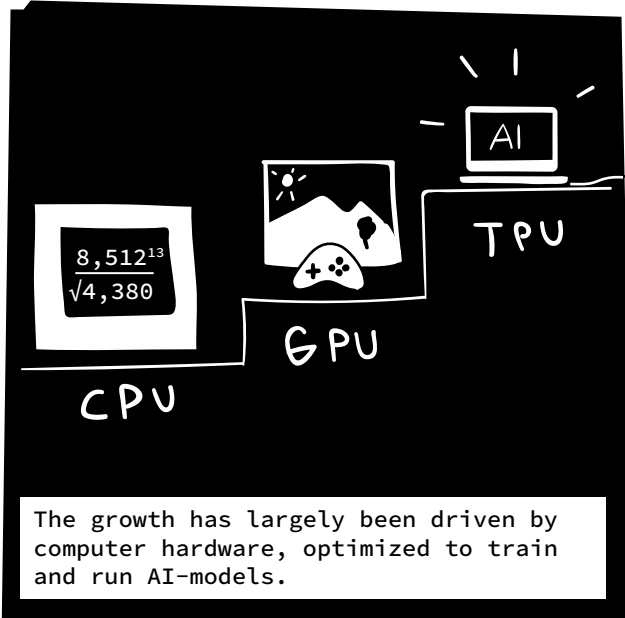
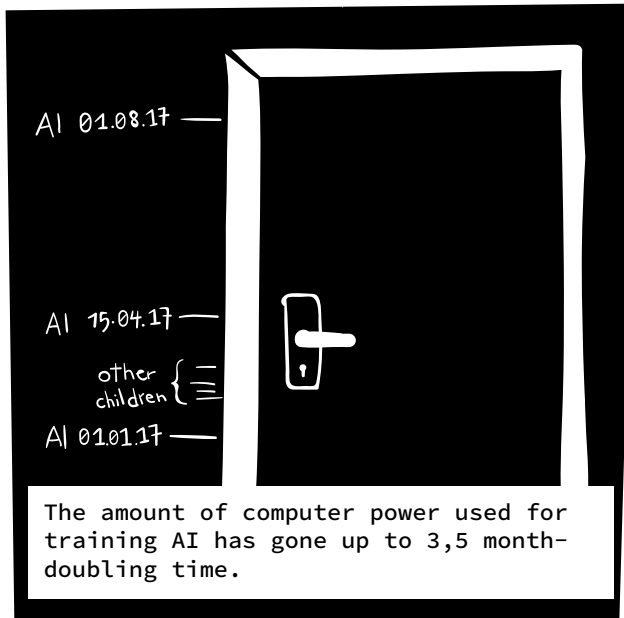
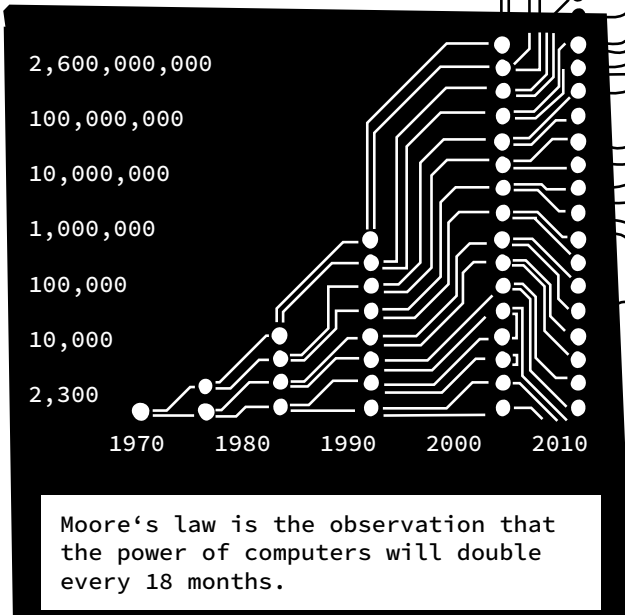
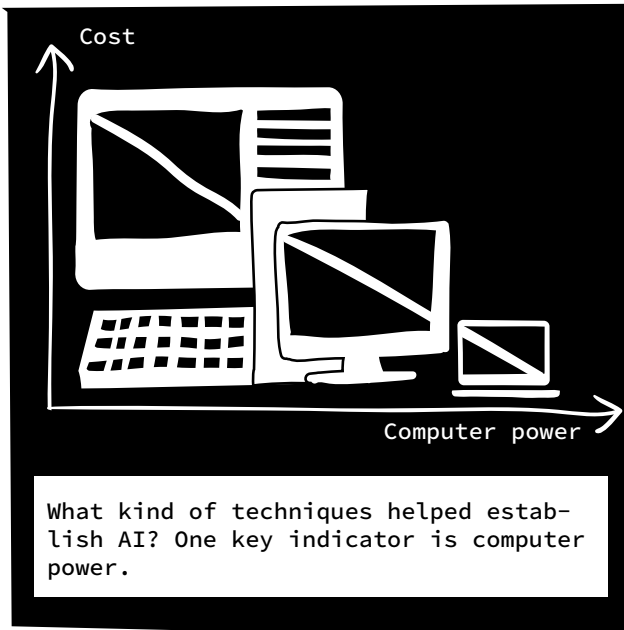
This being said, AI is still in its
early stages (although it reads differ-
ently on the news).

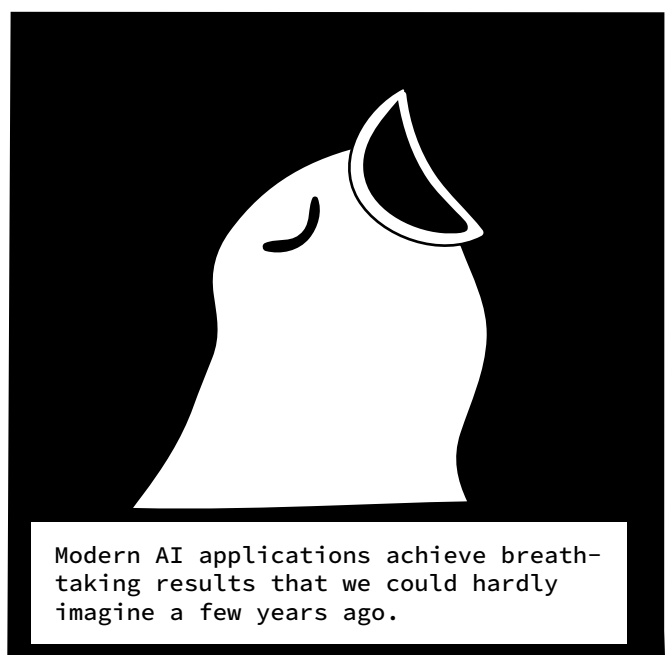
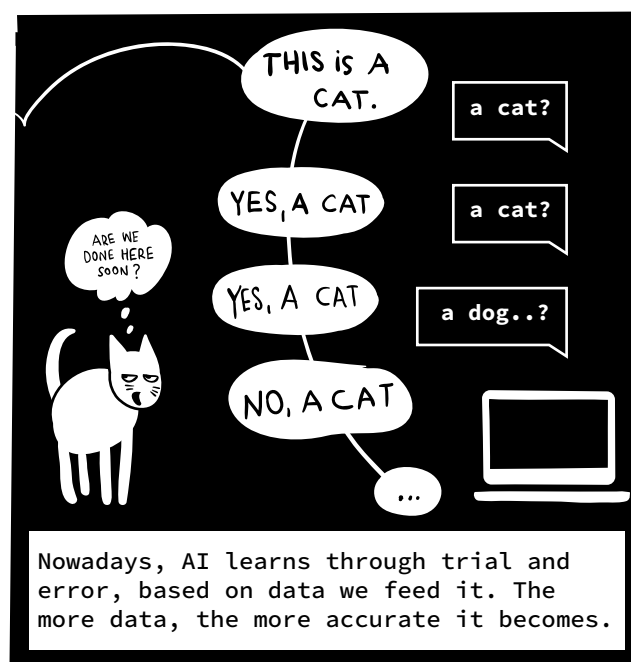
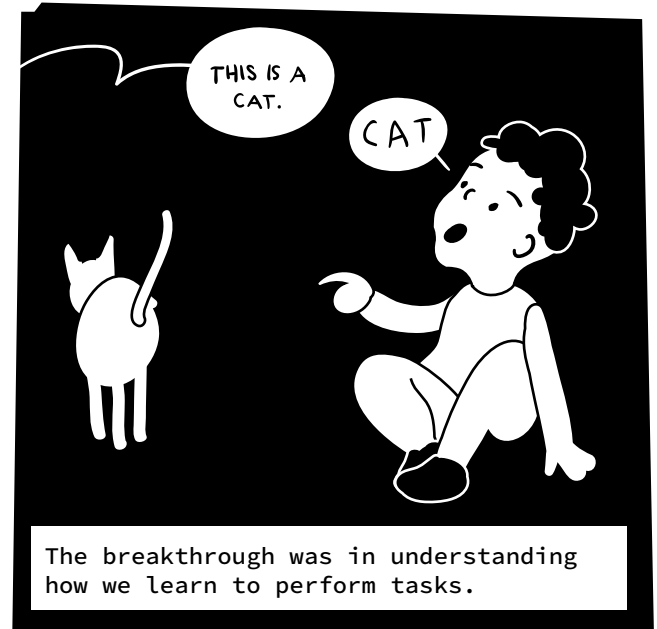
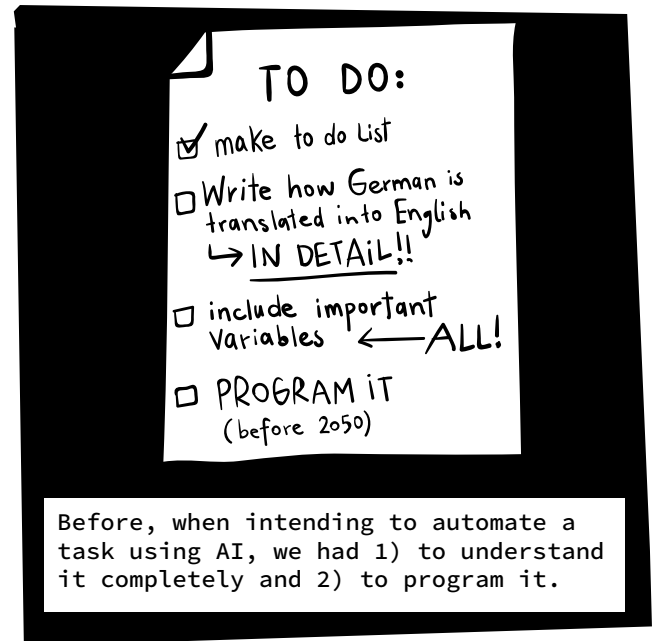
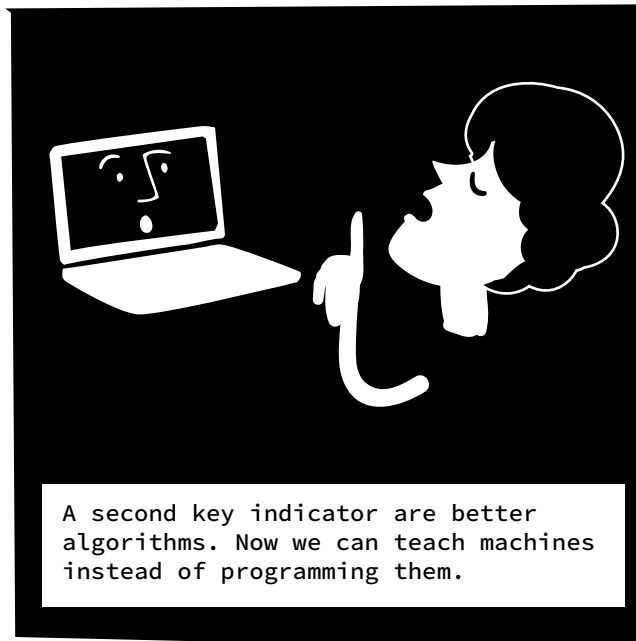


Up to now, it's more adequate to speak of
„artificially augmented intelligence“.*

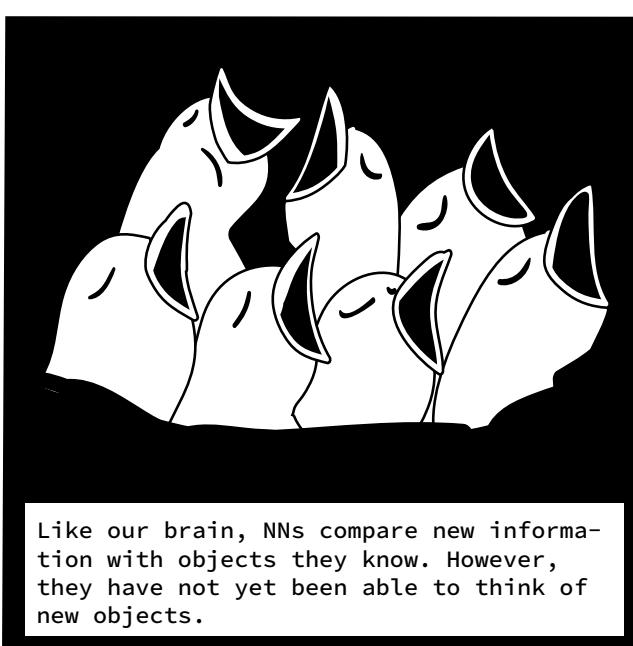
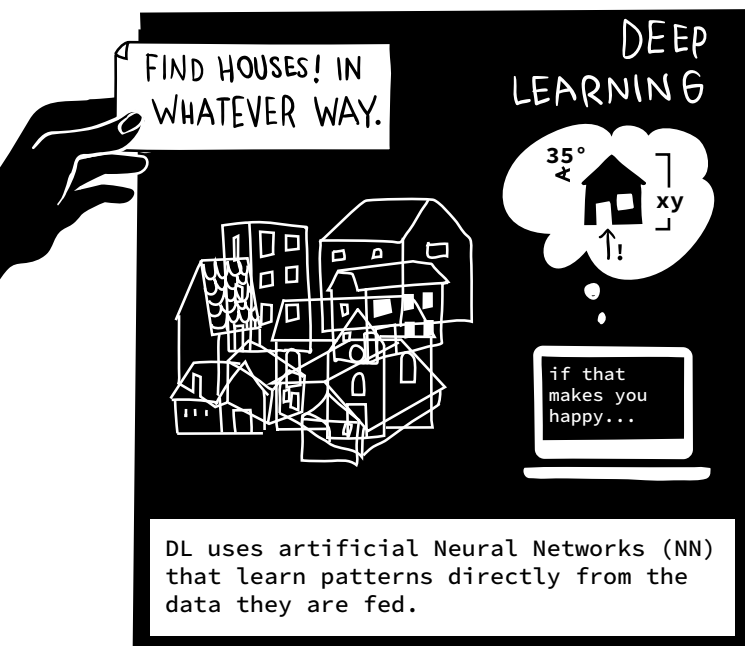
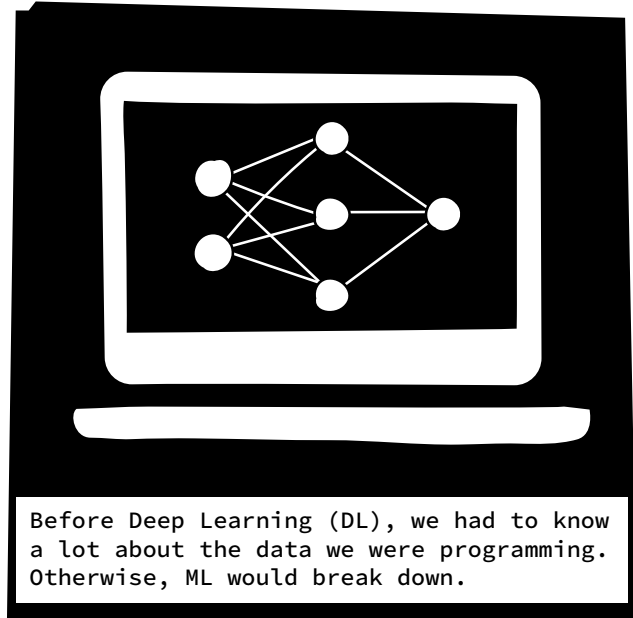
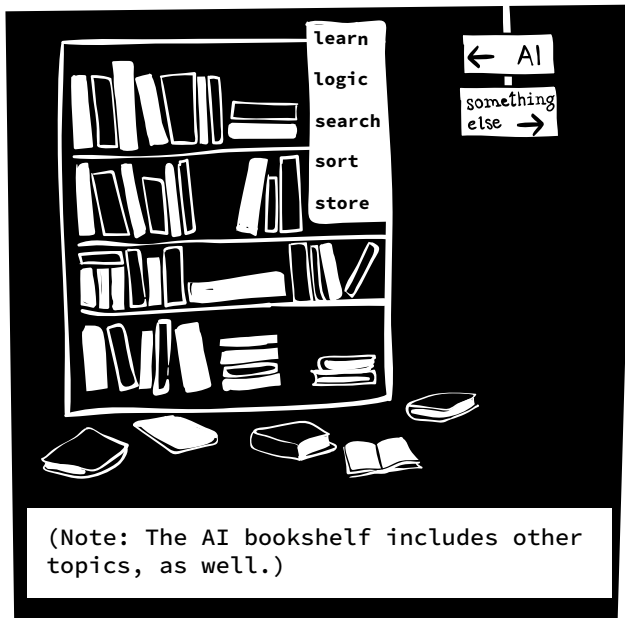
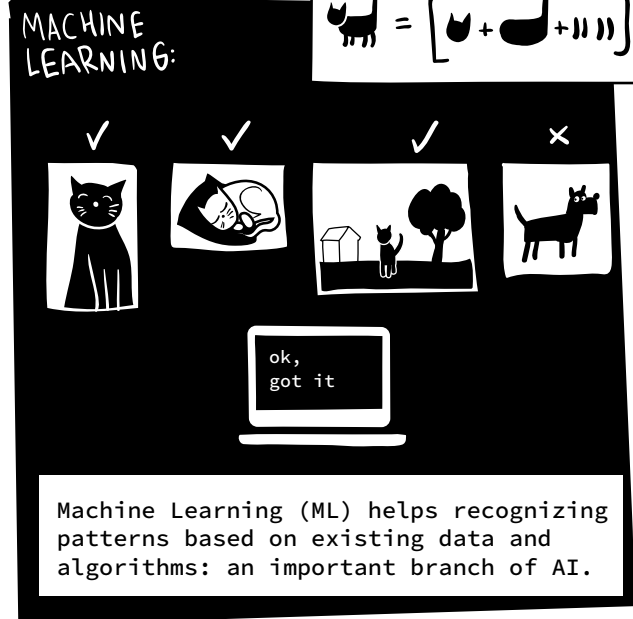
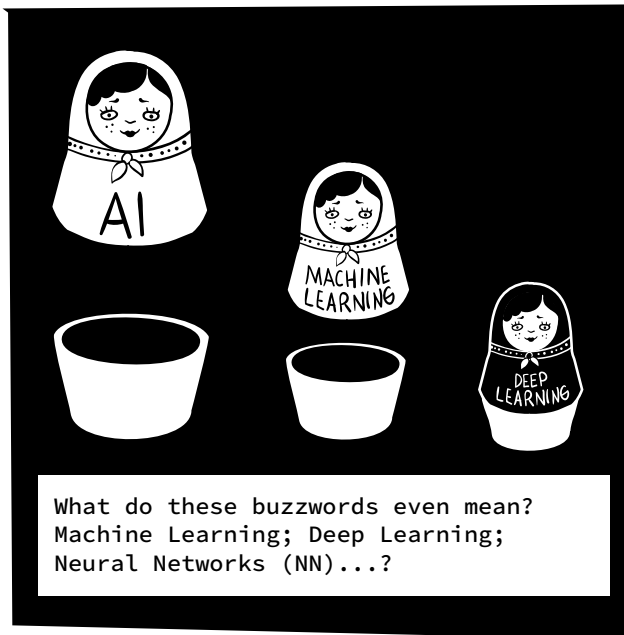
*Nevertheless, we will use the term ‚AI‘ in the following
to simplify matters. And please, find some reading
suggestions at the end of the book.

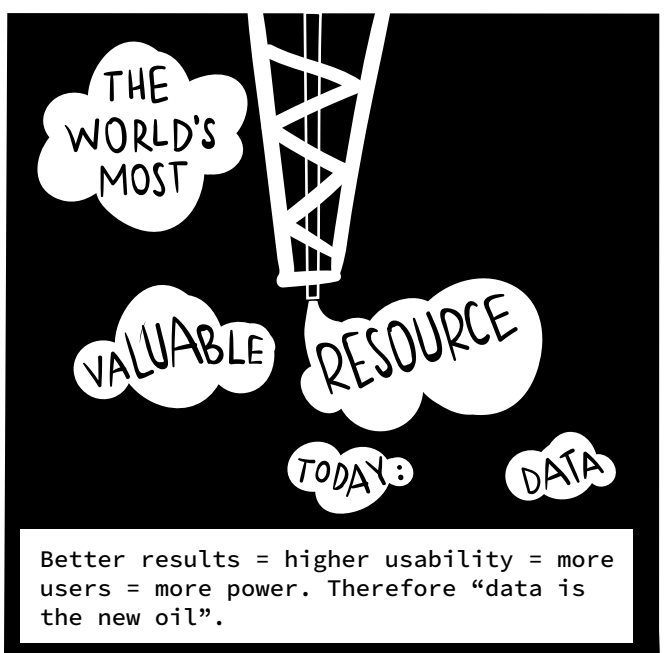
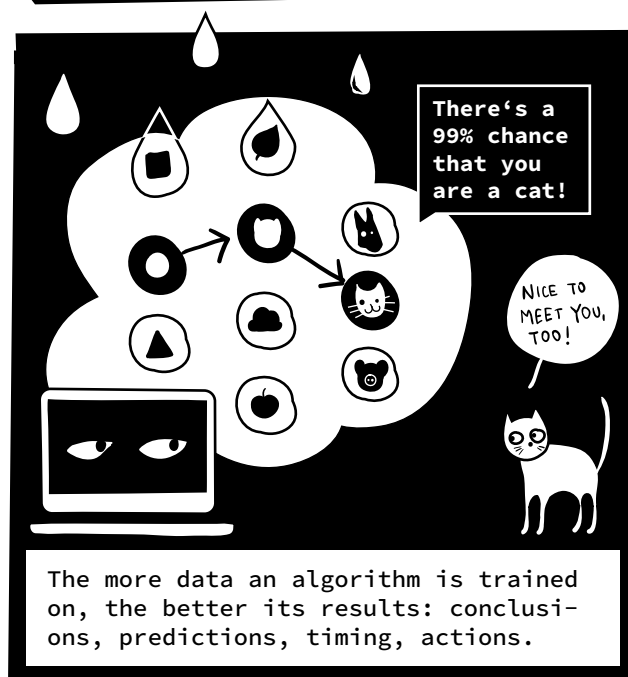
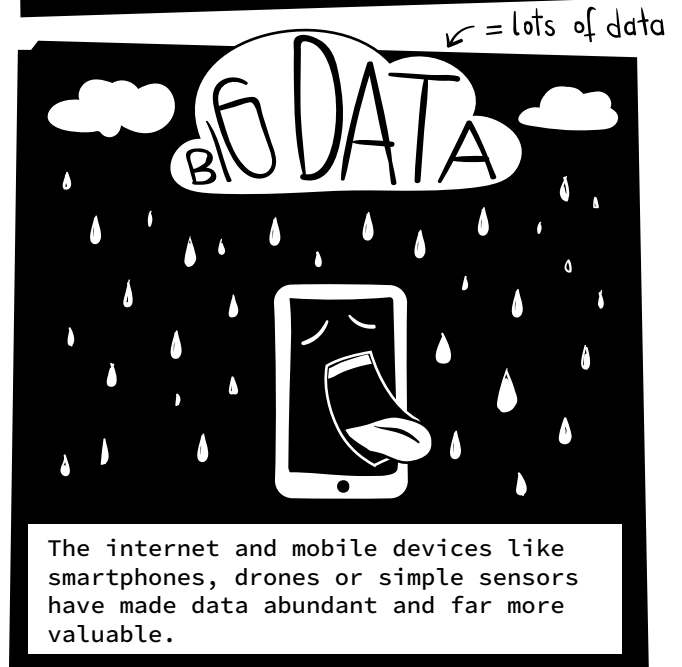
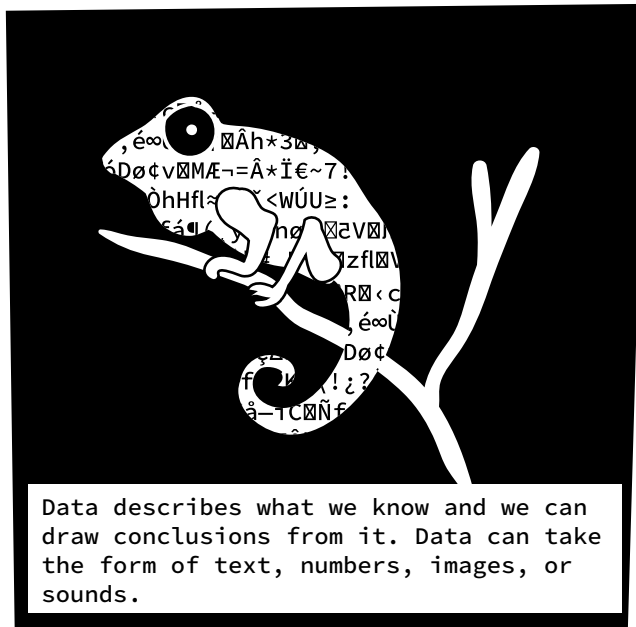
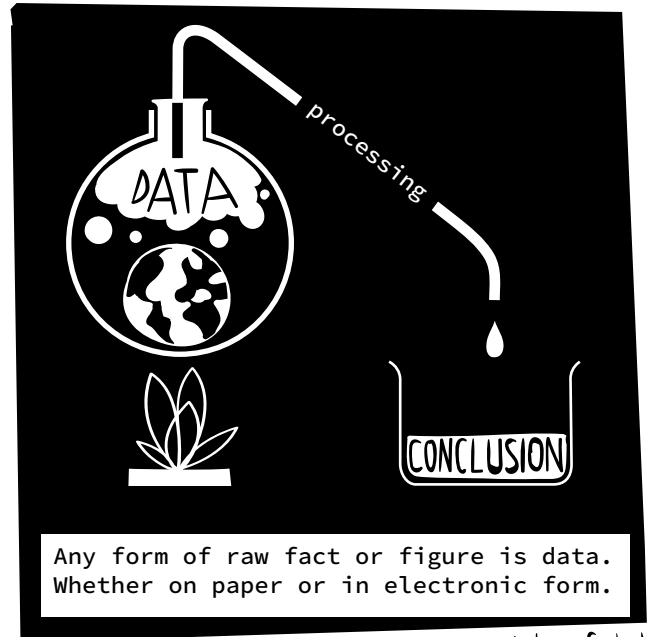
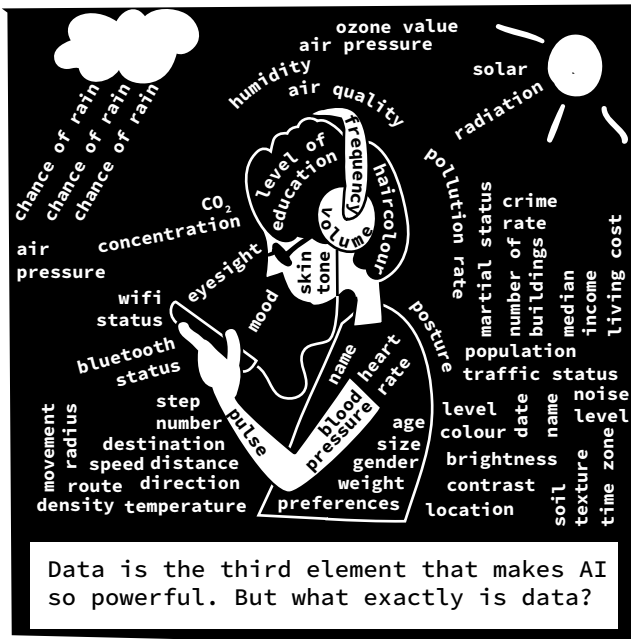
Computer Power



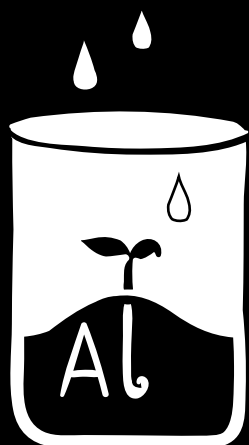


Algorithms 2

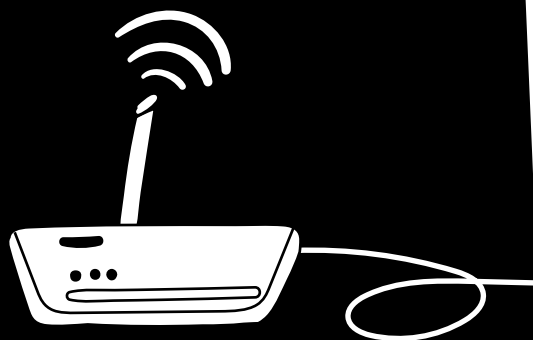




Data 2



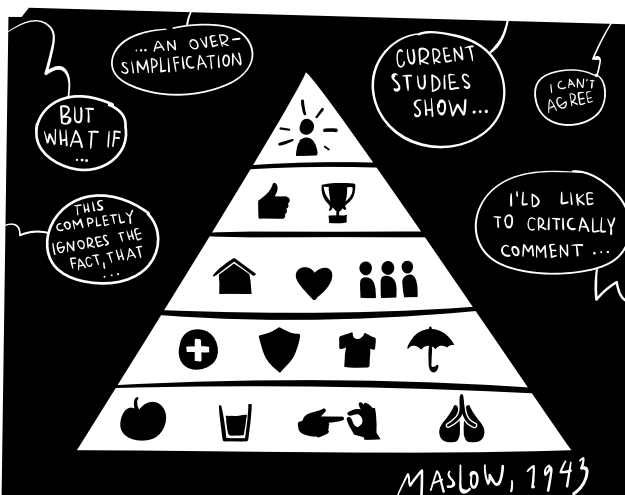
Okay, all AI applications need training data to get good results.



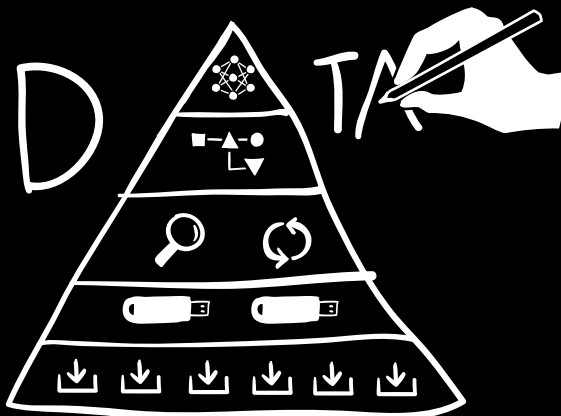
Only with the invention of the internet, we were able to collect and store enough data to make AI work.



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.



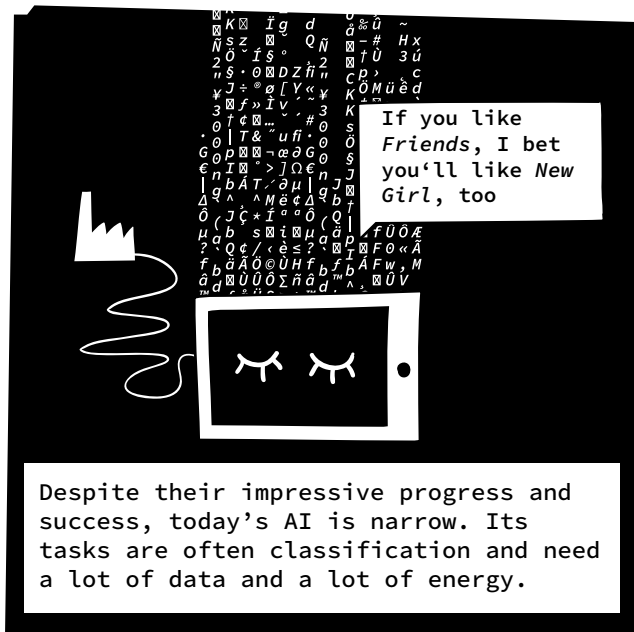
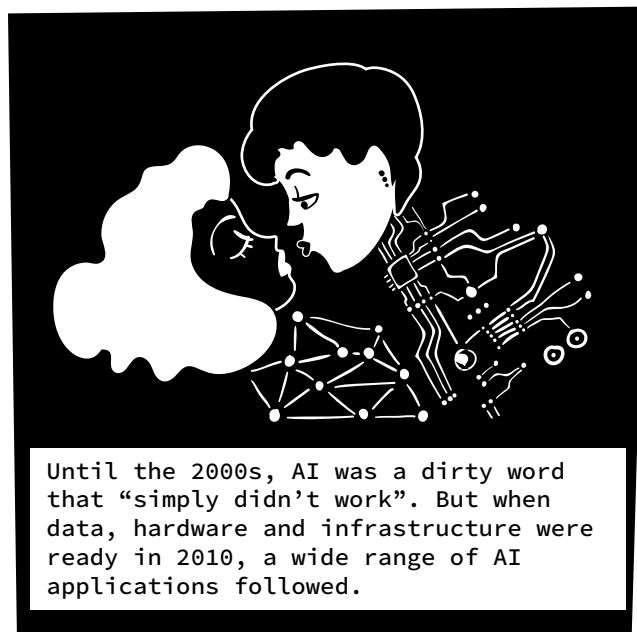
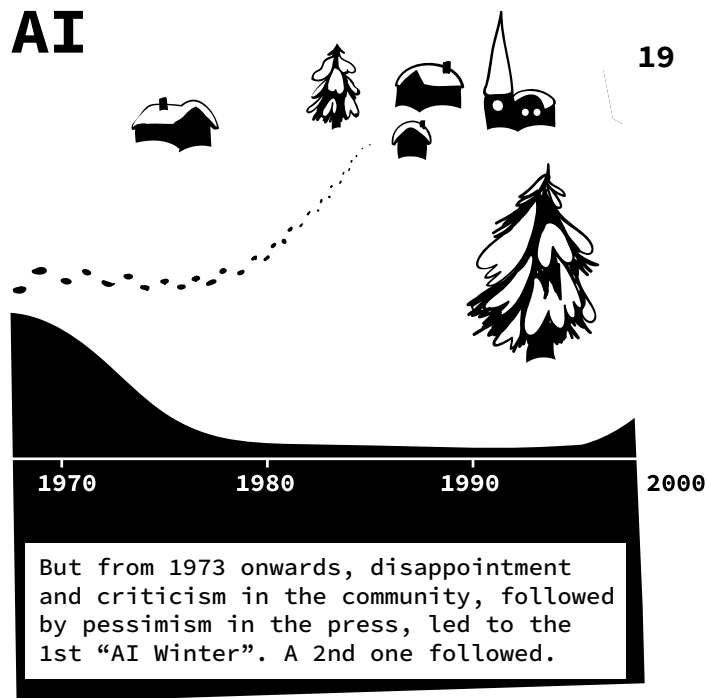
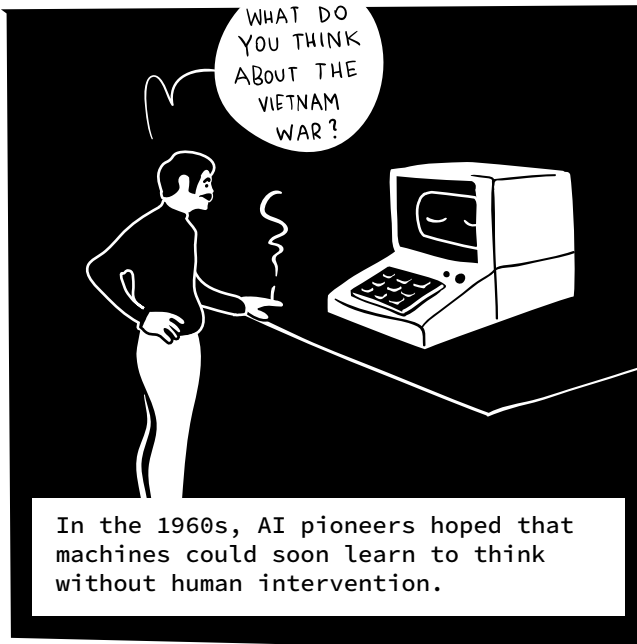
Four out of five necessary steps have to do with data.



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

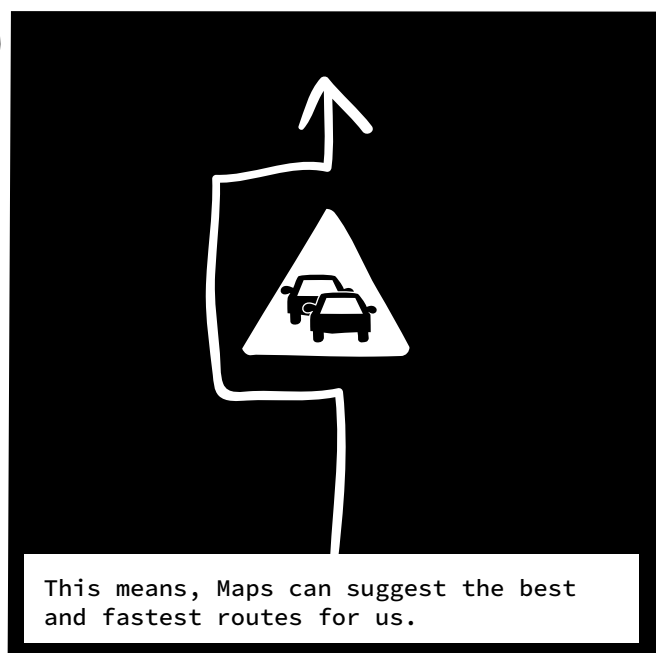
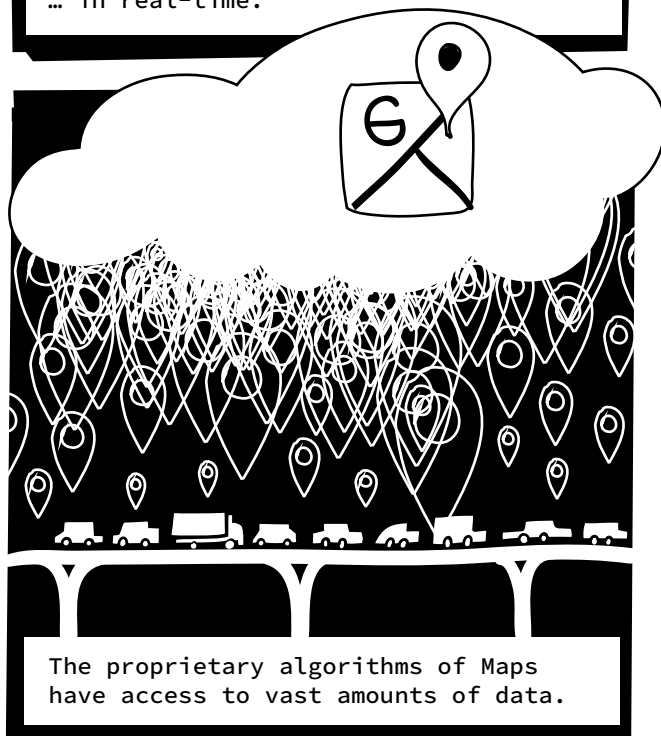
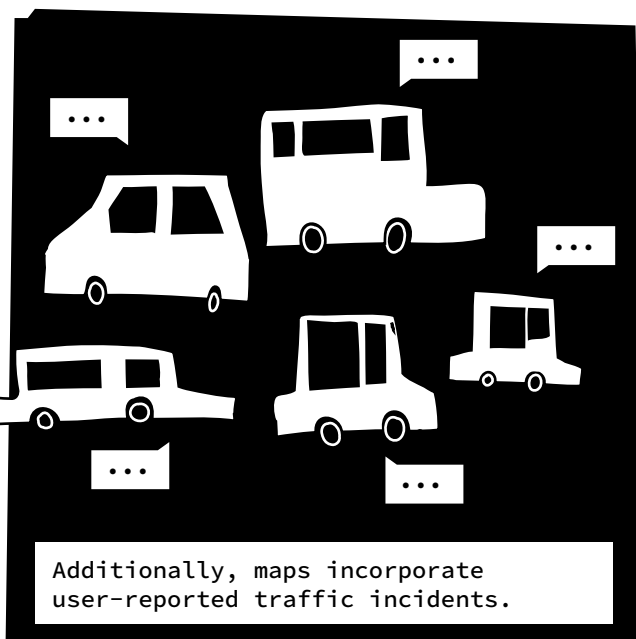
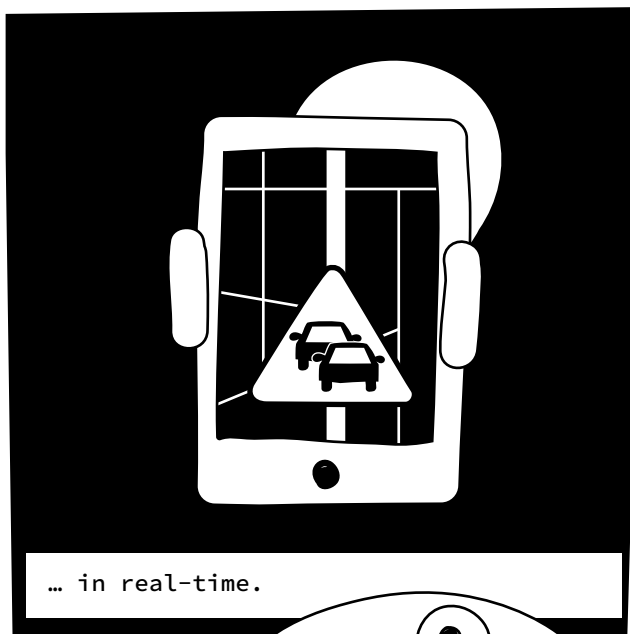
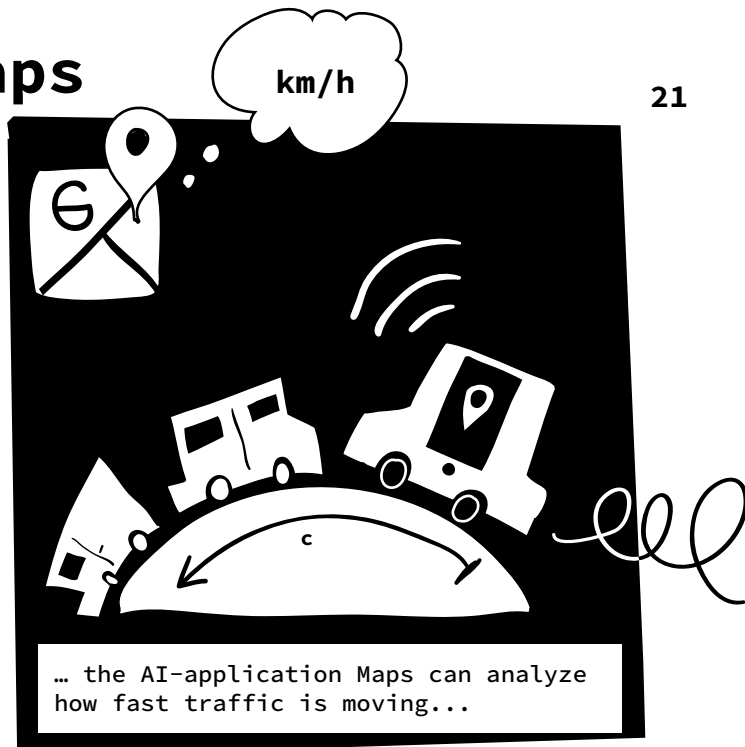
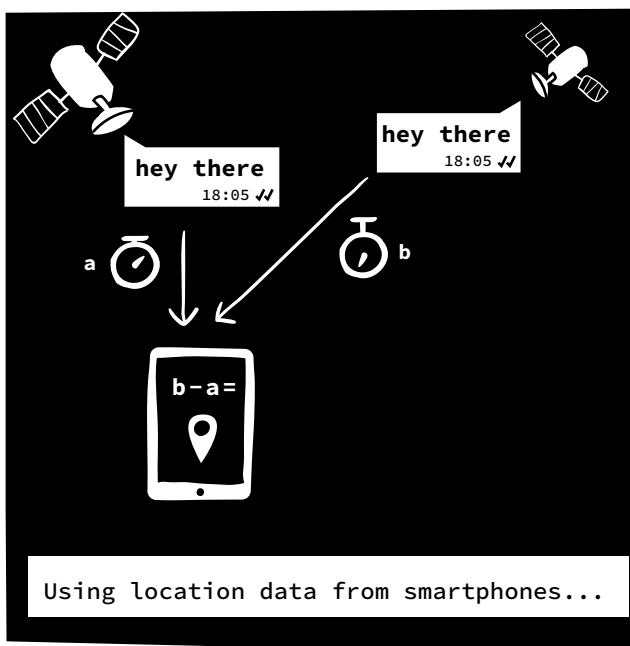
General AI

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Examples

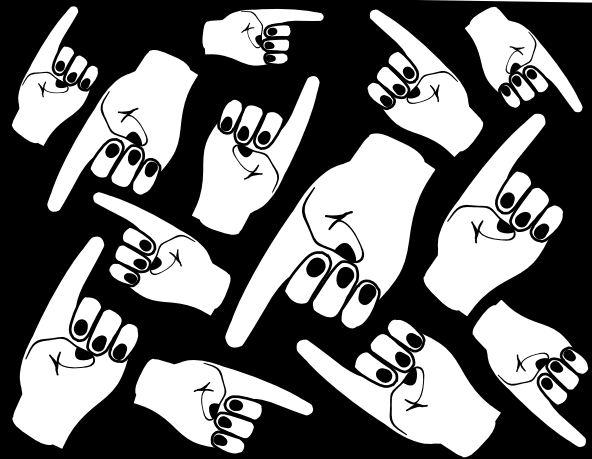




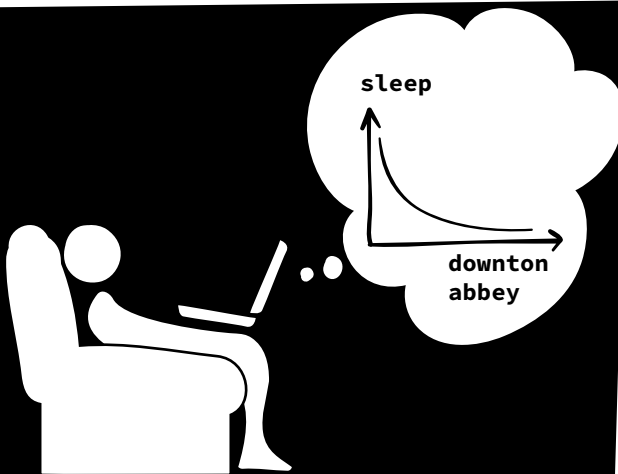
Recommendation



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



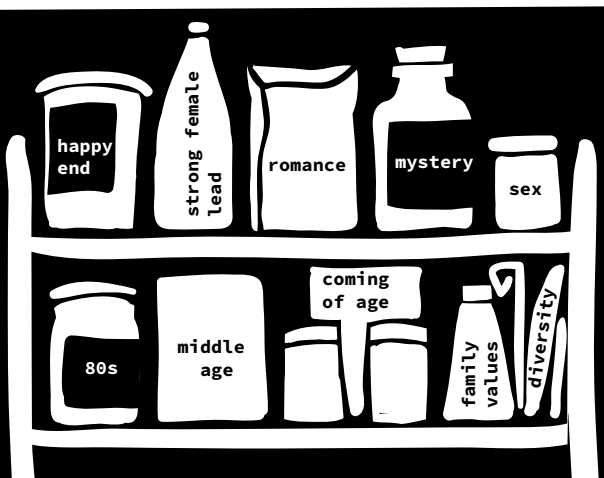
If we're looking for books or shoes, internet shops use AI so that our purchase decision gets easier.



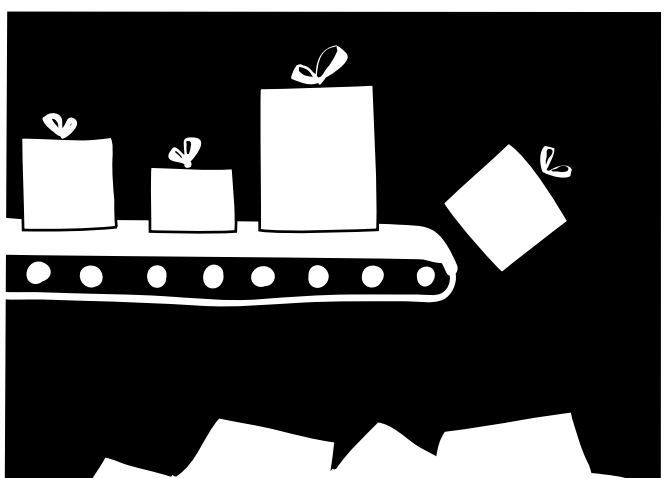
Likewise, streaming providers use AI to analyze our consumer habits down to the last detail.



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



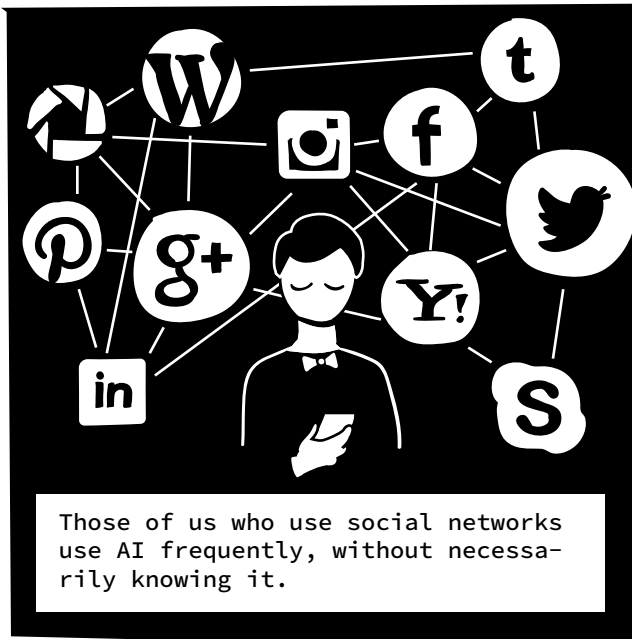
Also, the platforms use the knowledge of our habits to create and offer new products similar to previous successes...



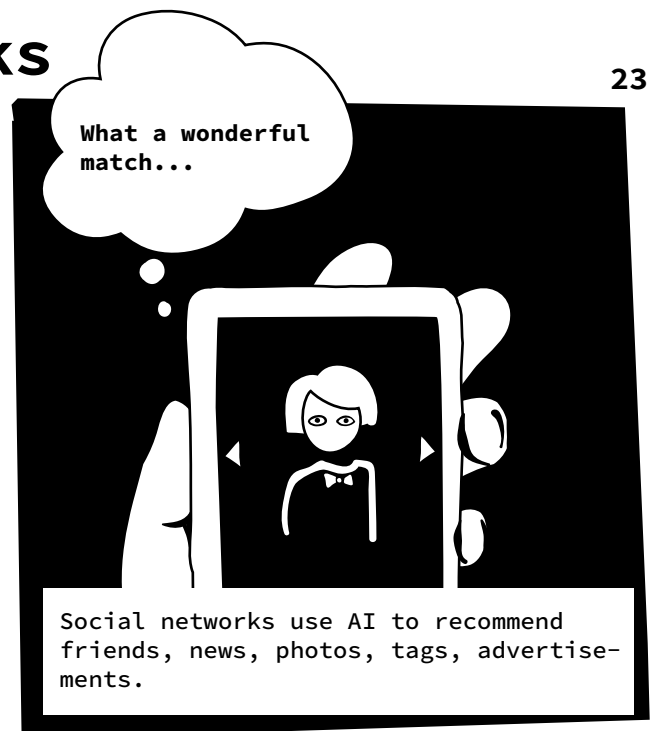
...or to let AI autonomously stir those components together that have worked great elsewhere.

Social Networks

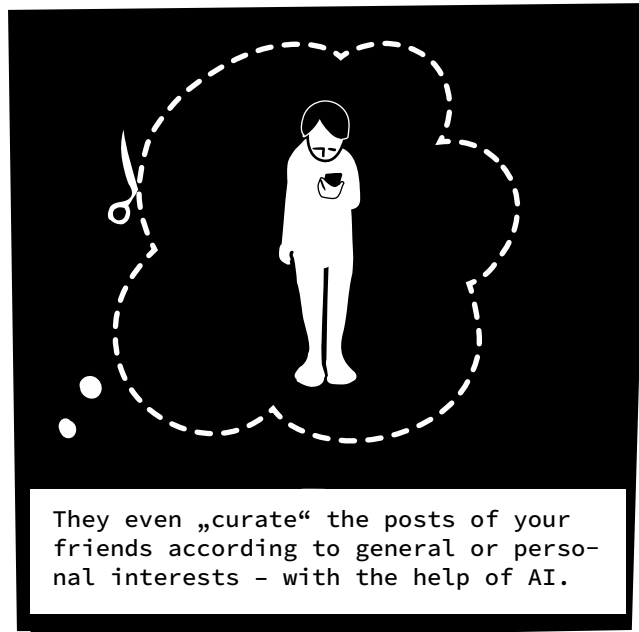
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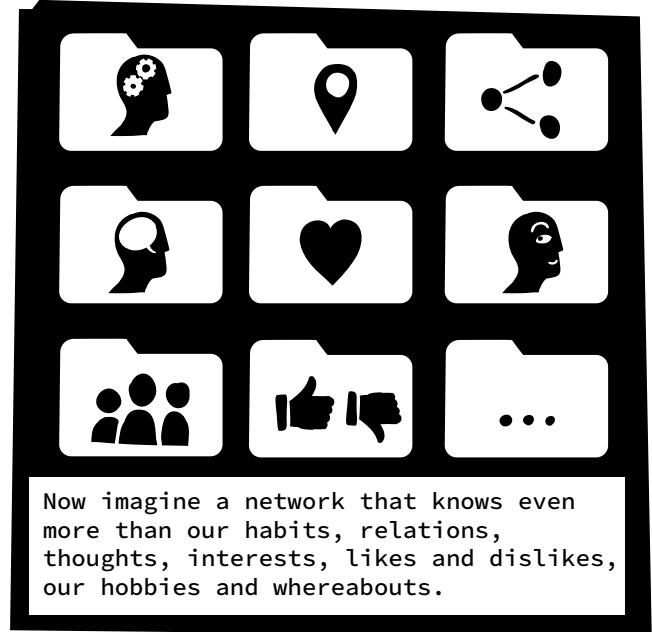
Those of us who use social networks use AI frequently, without necessarily knowing it.



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



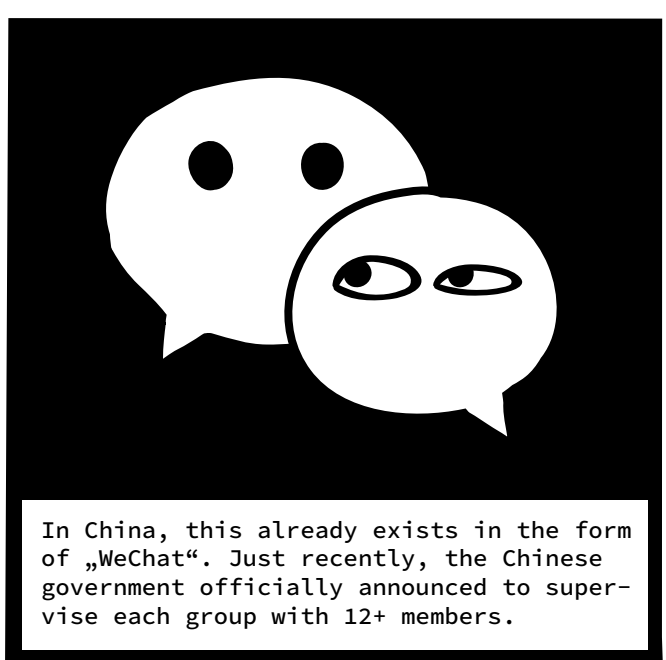
They even „curate“ the posts of your friends according to general or personal interests - with the help of AI.



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.

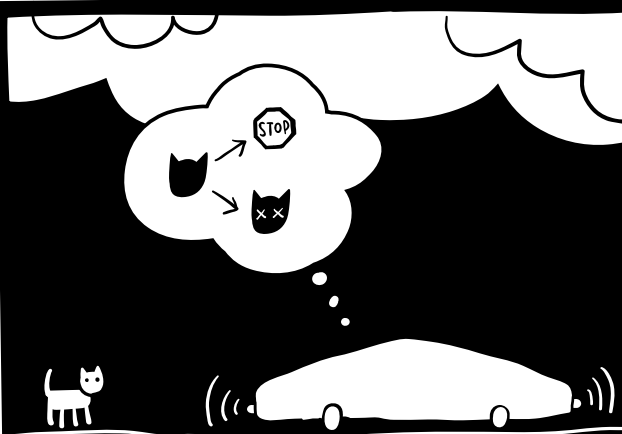
Self-driving Cars



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



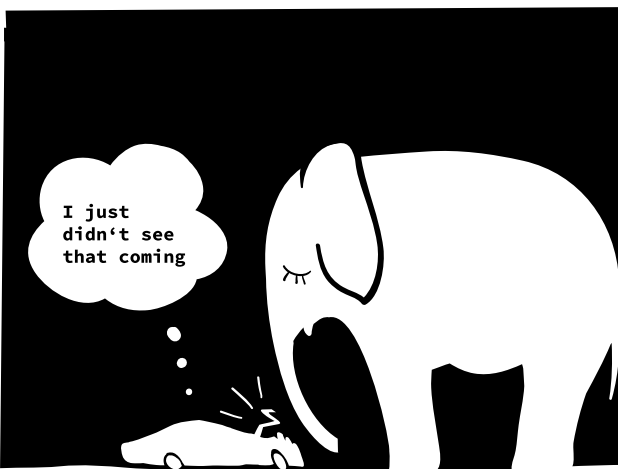
But ultimately, we are responsible. The systems are not autonomous - or self-driving.



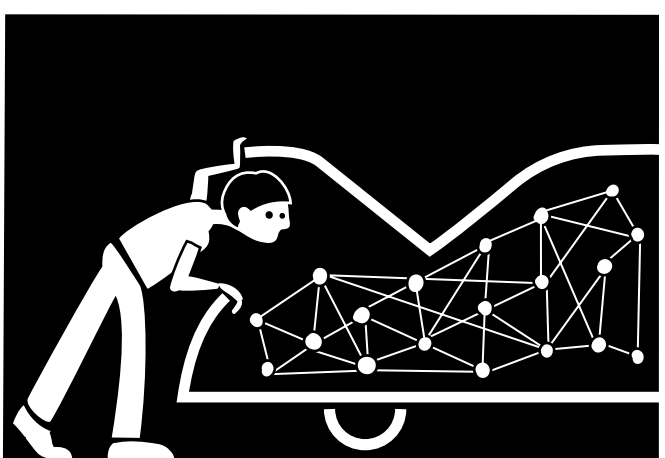
Within a few years, this might change.



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



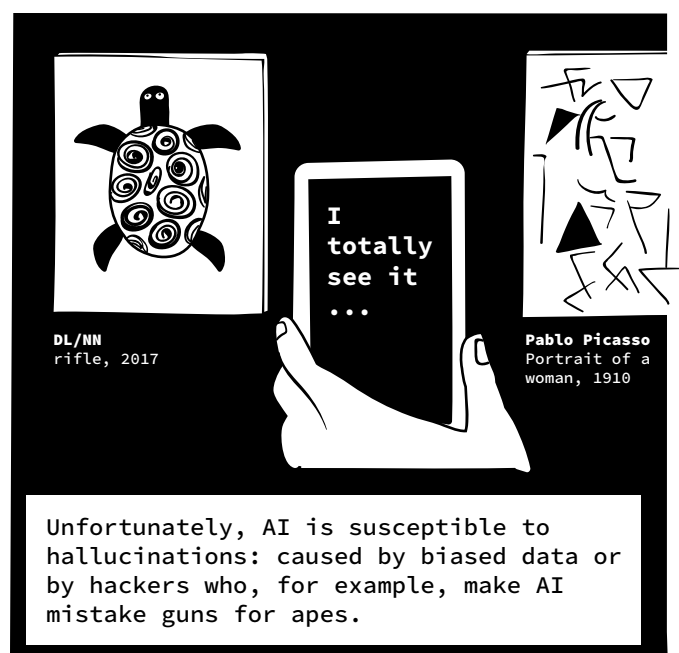
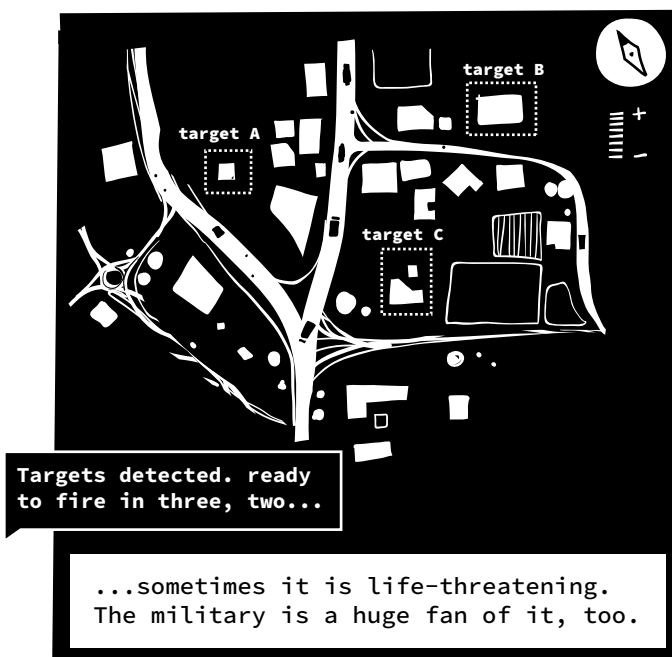
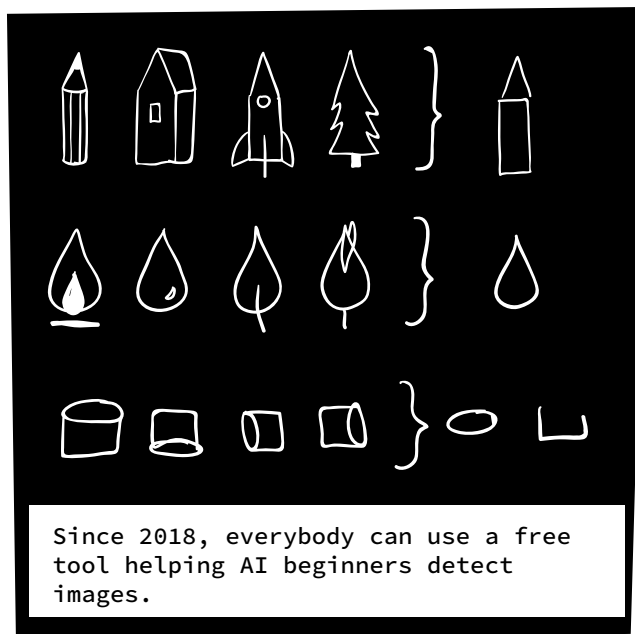
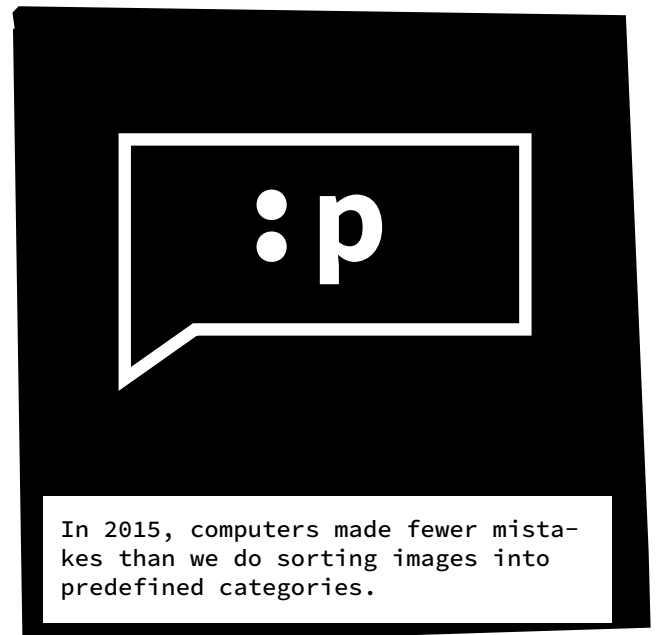
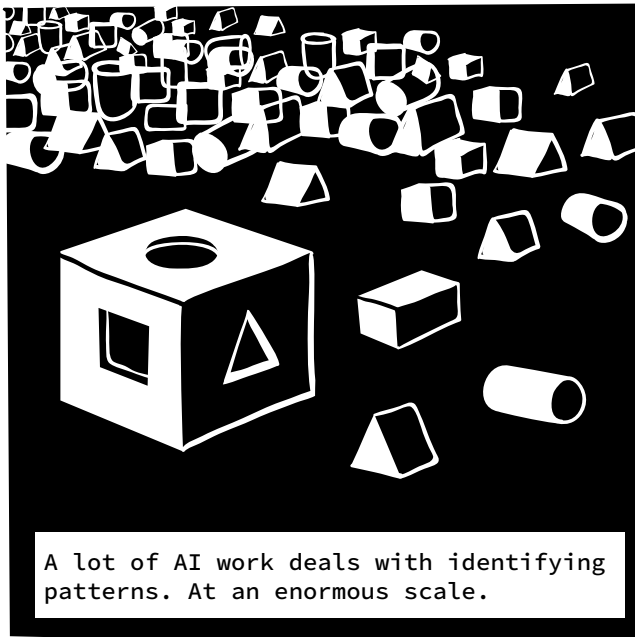
Or maybe not. Nearly every car accident involves some sort of unforeseen circumstances, the AI must confront for the first time.



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

Identifying Images

25



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.

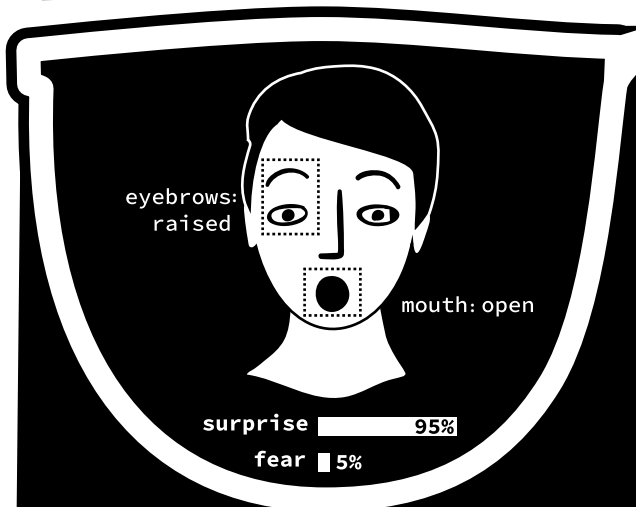


As our relationship with AI is becoming more and more intimate...



you said you didn't want to go there and instead sleep all day...

... 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.



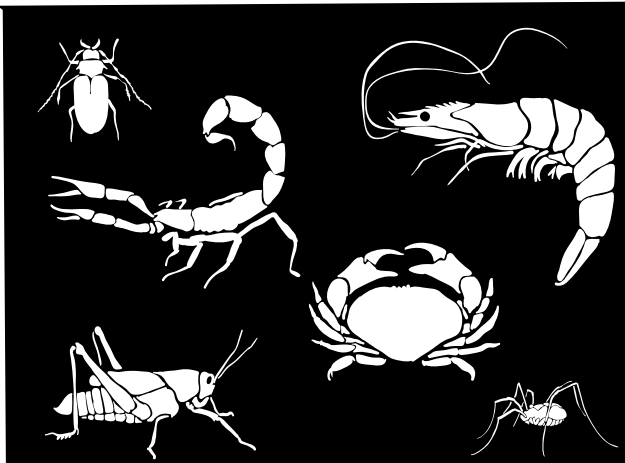
Indeed, Emotional AI could help us with some highly valuable tasks. Help autistic children, for example, to learn emotions.



IMPORTANT PERSON

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

Exoskeletons

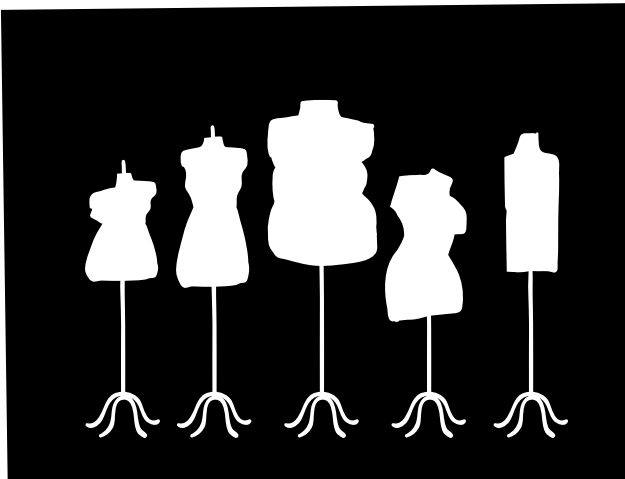


Exoskeletons are an external framework we can wear to augment our natural physical ability and reduce strain and weaknesses.

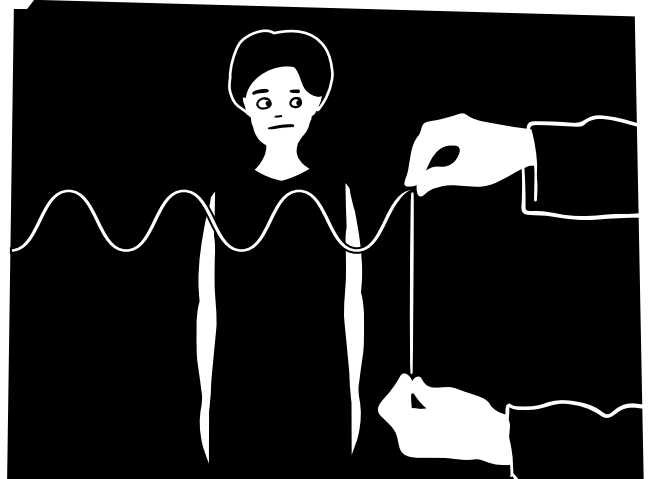
I FEEL VERY UNCOMFORTABLE BEING EXPOSED LIKE THIS



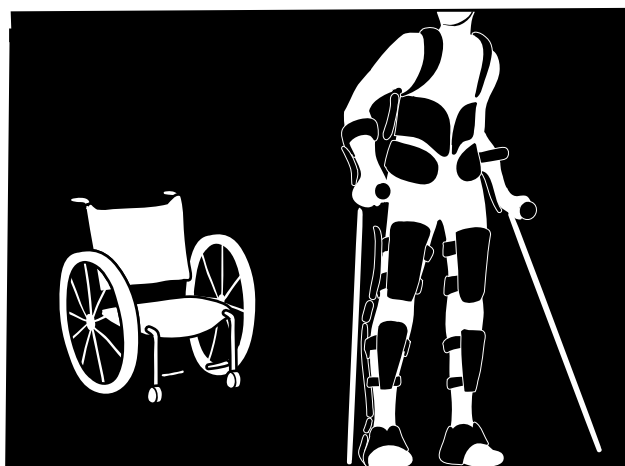
But every one of us is different.



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.

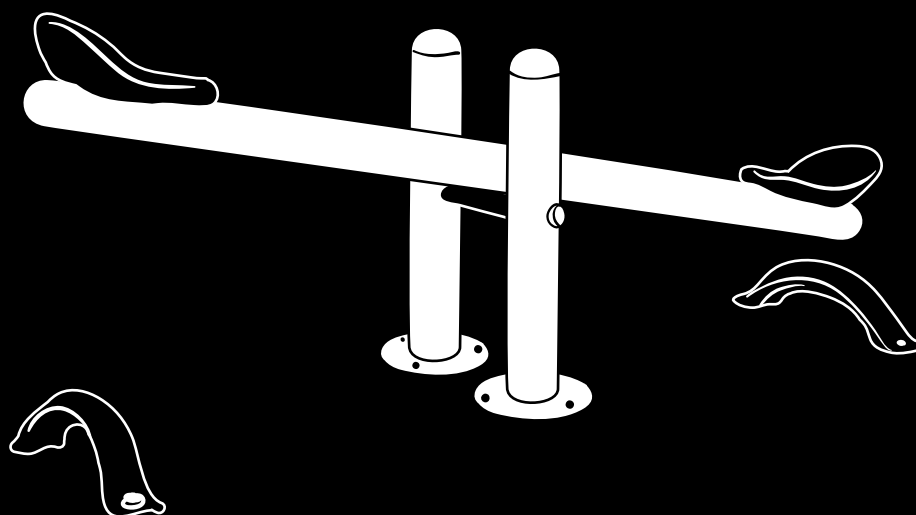


This way, the AI can get our individual profile right. AI can make our exoskeletons fit our needs - elderly man or firefighter.



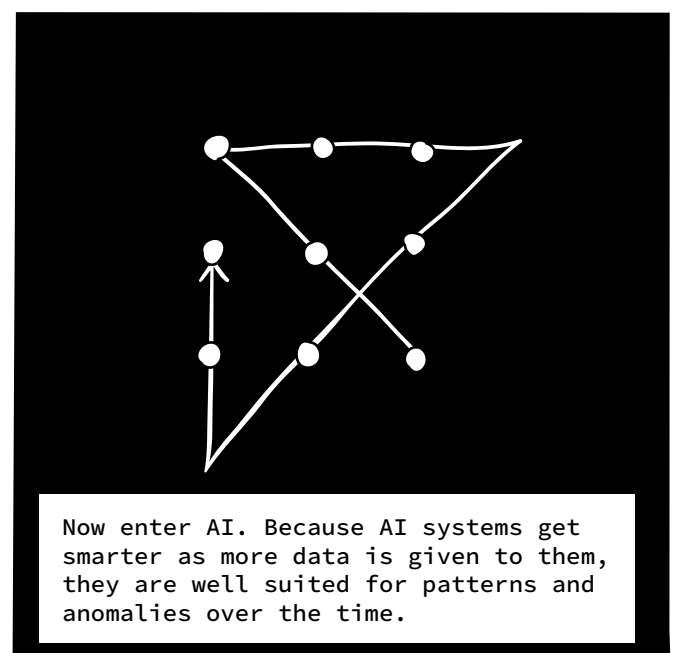
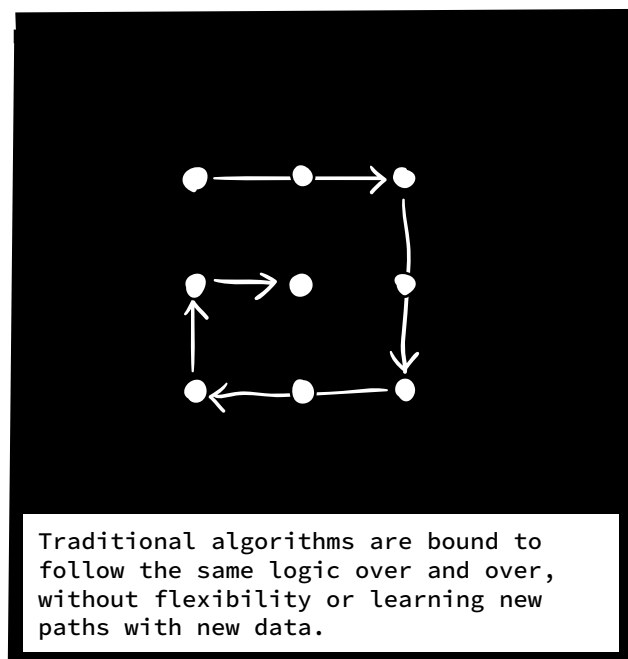
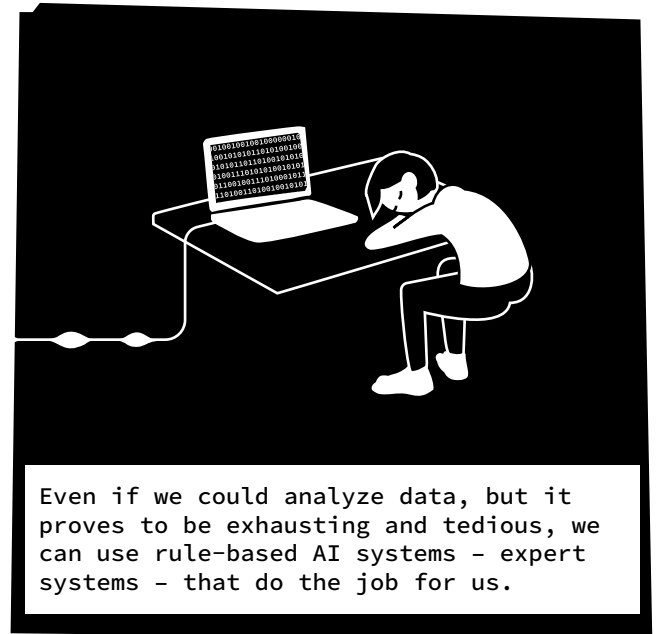
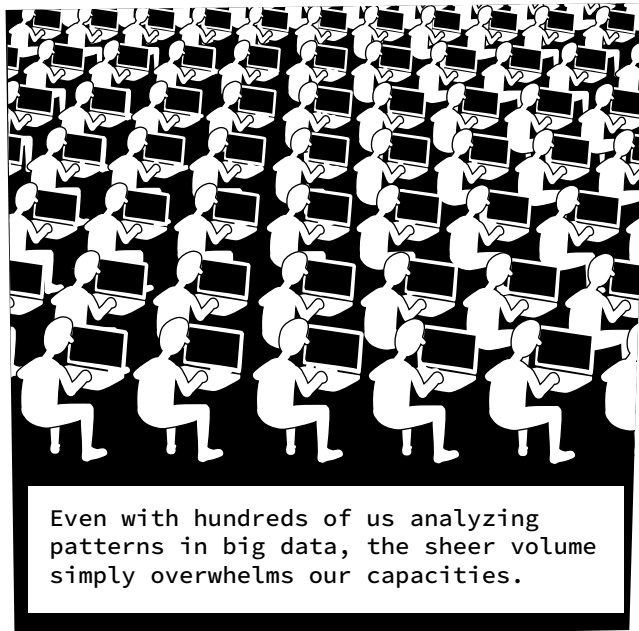
Our bodies are different and constantly changing. Nowadays, the only feasible way of translating this to robotics is through the help of AI.

Chances

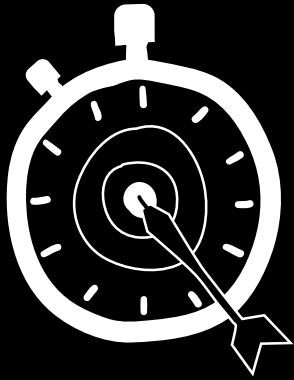


Dealing with Big Data

29



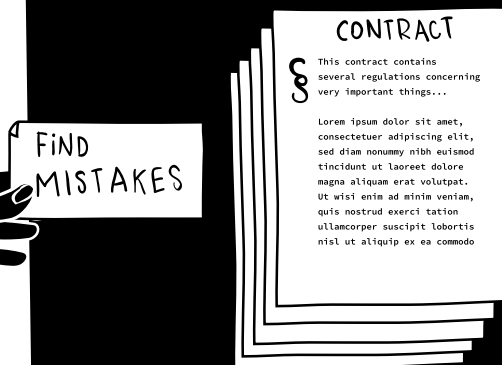
Efficiency



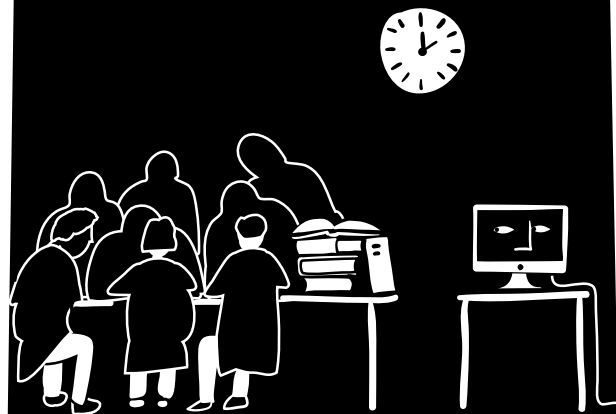
In many situations, AI is simply faster and more accurate than we are. Let's look at an example*.



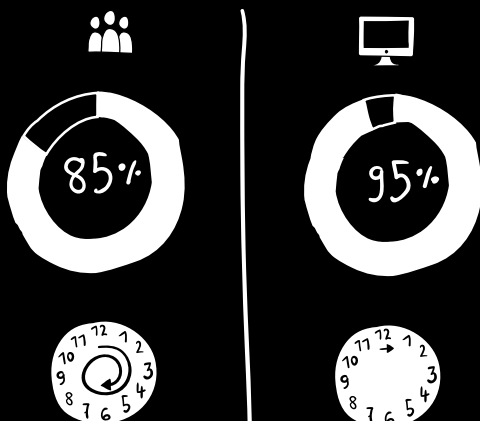
A legal platform carried out a competition between 20 experienced lawyers against a trained AI.



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?

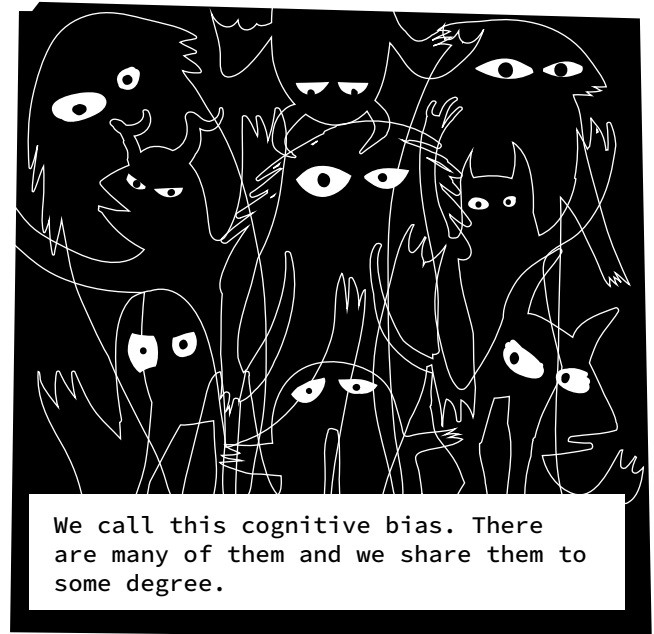
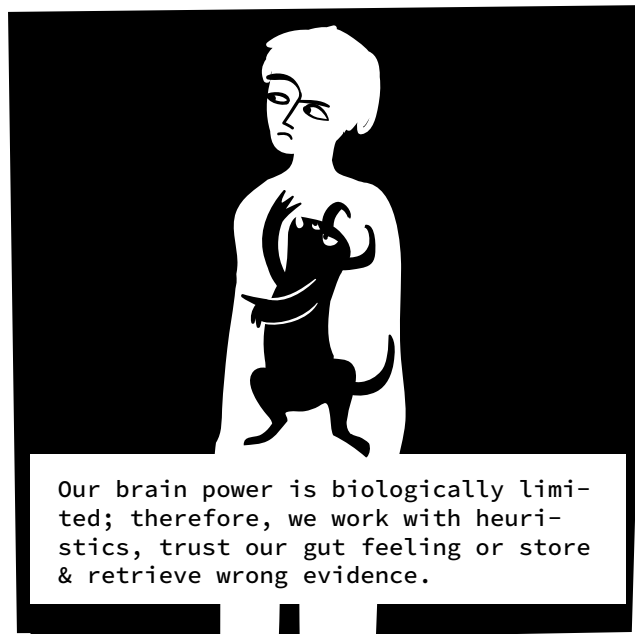
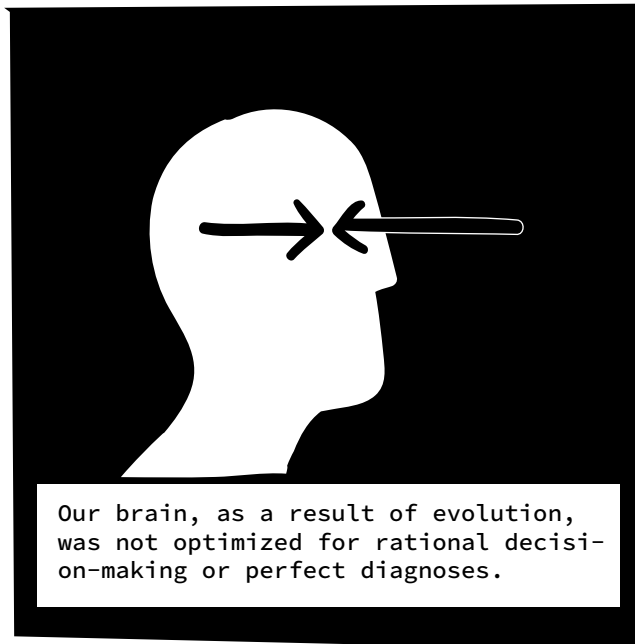


Humans achieved, on average, an 85% accuracy rate, the AI 95%. Humans took 92 minutes to complete the task, the AI... 26 seconds.

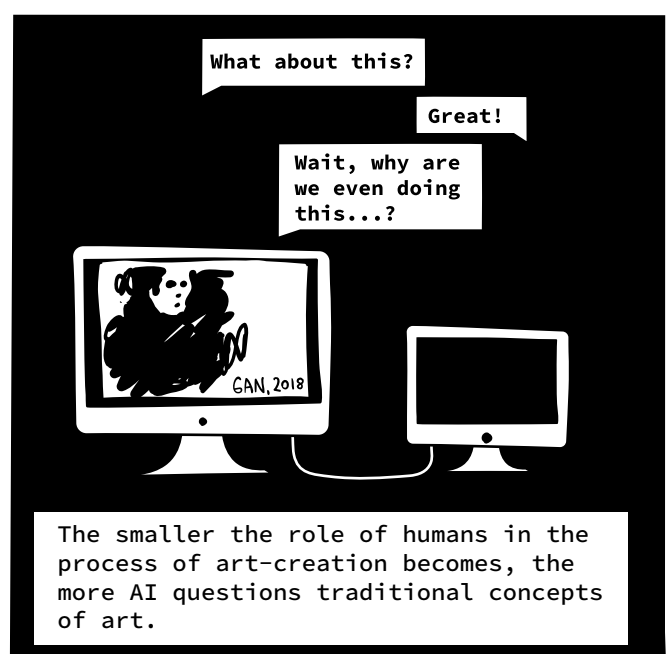
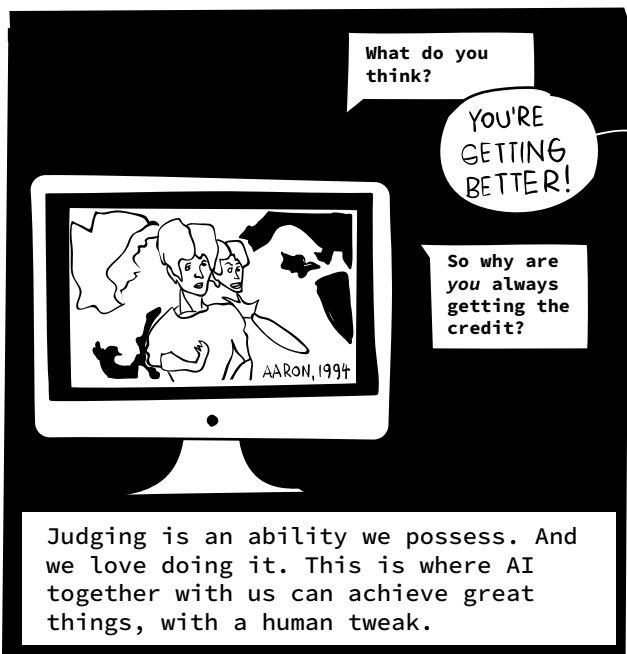
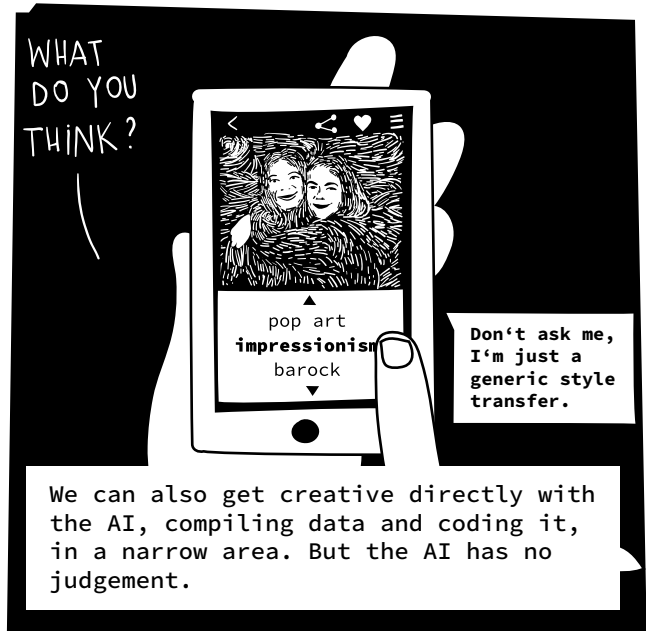
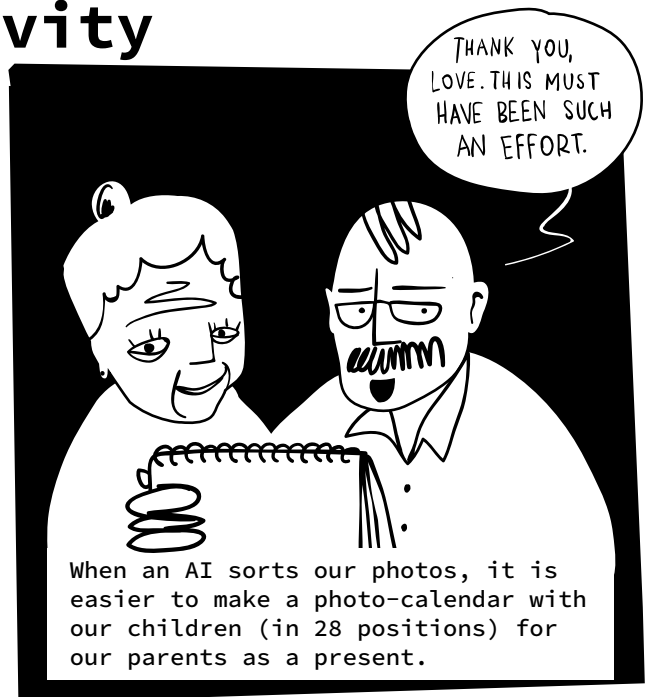


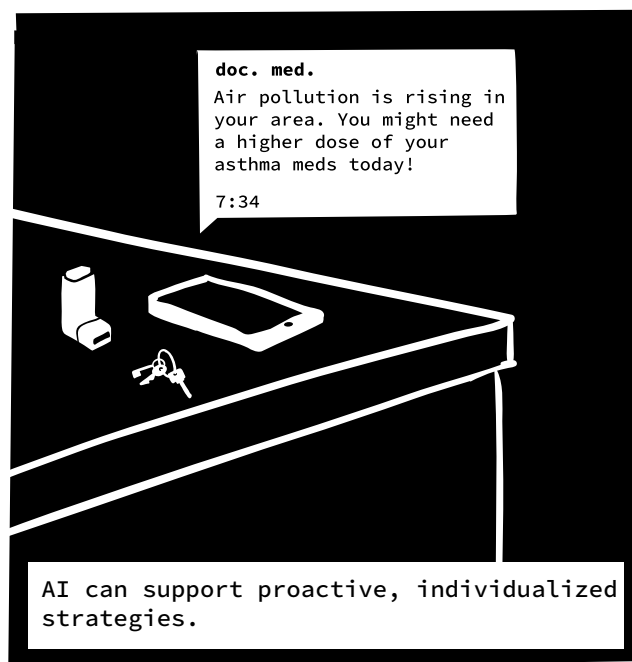
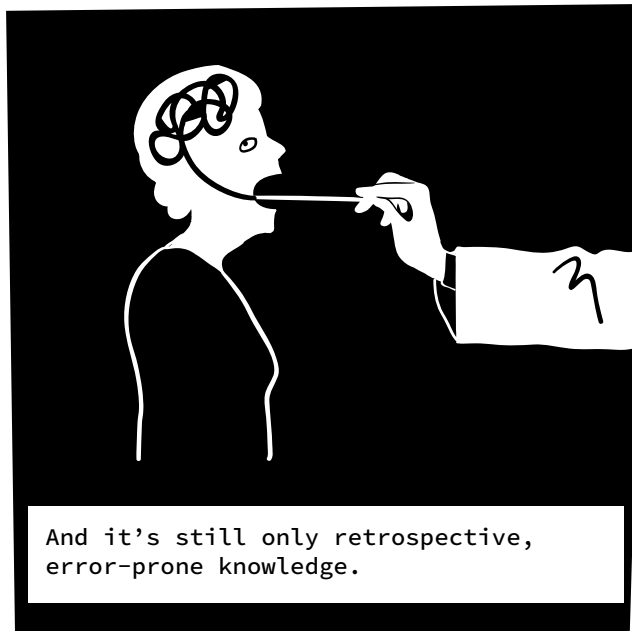
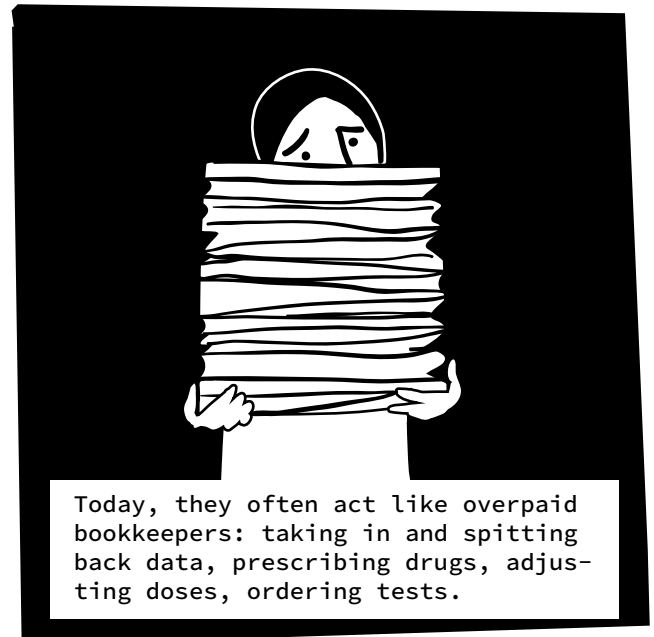
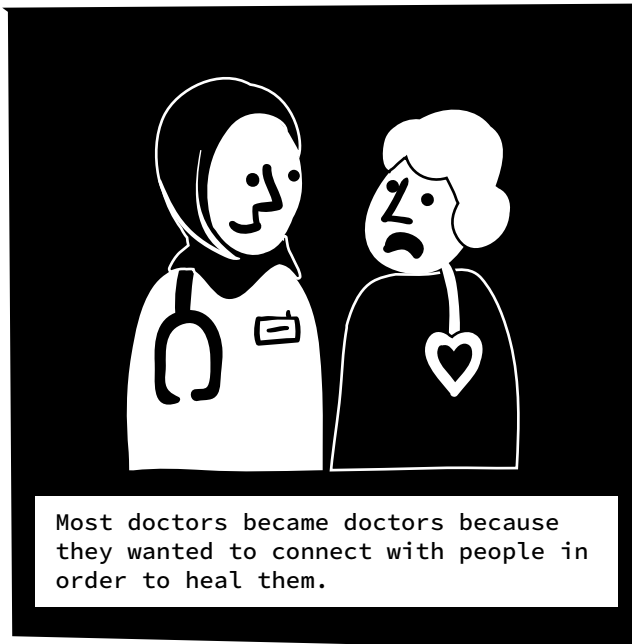
The human lawyers who competed against the AI in the experiment said, the tasks were very similar to what lawyers do every day.

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

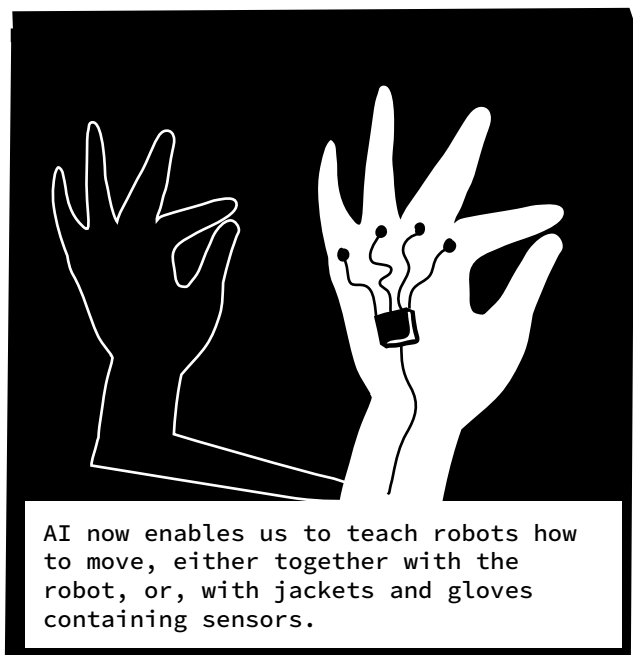
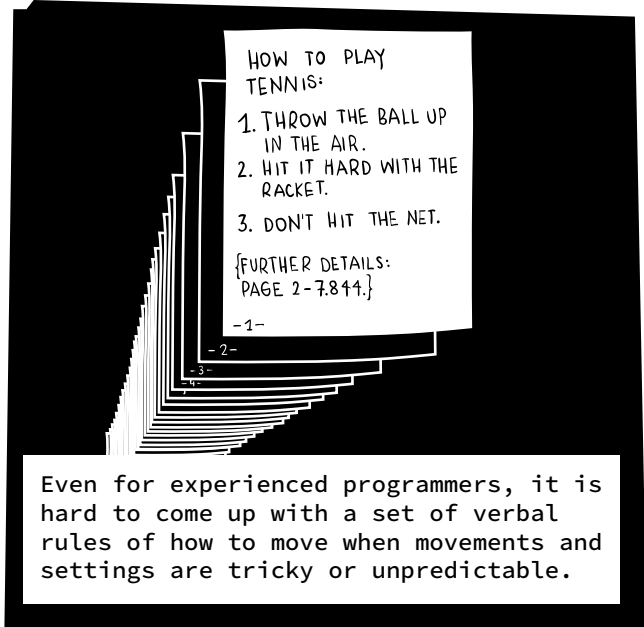
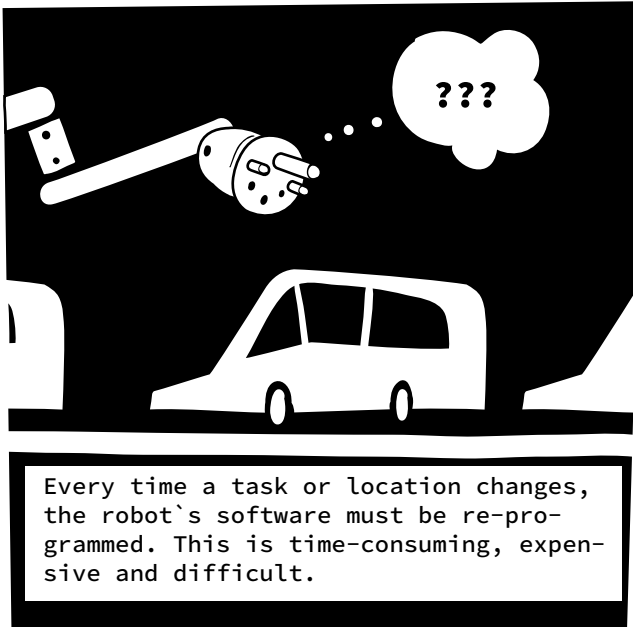
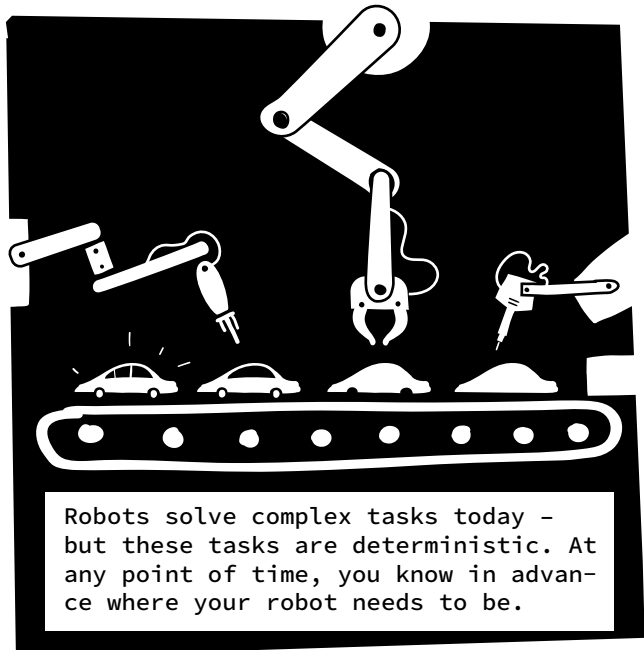
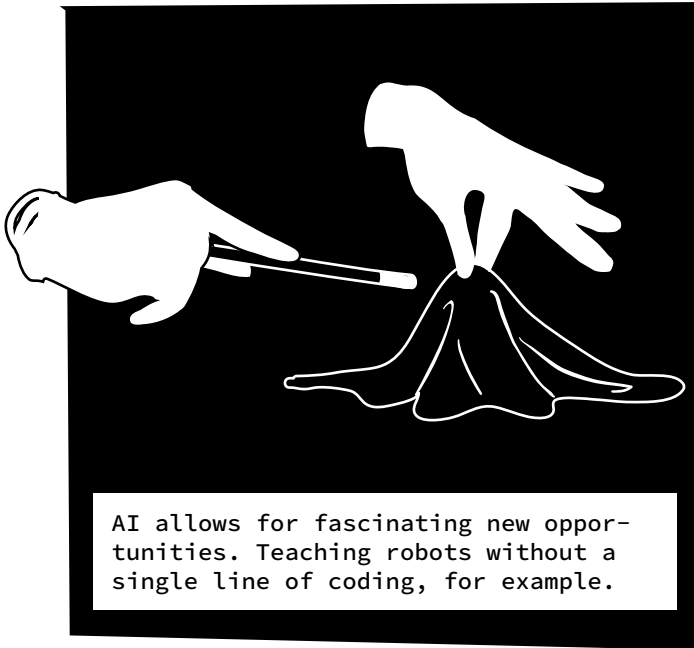


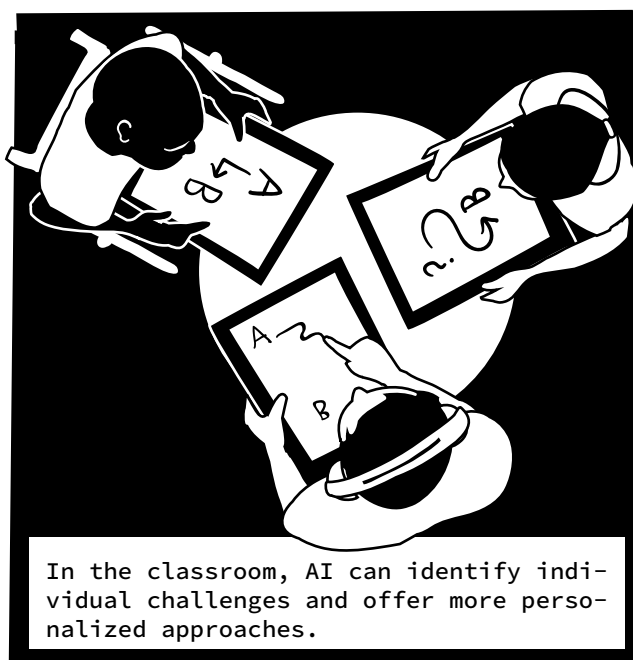
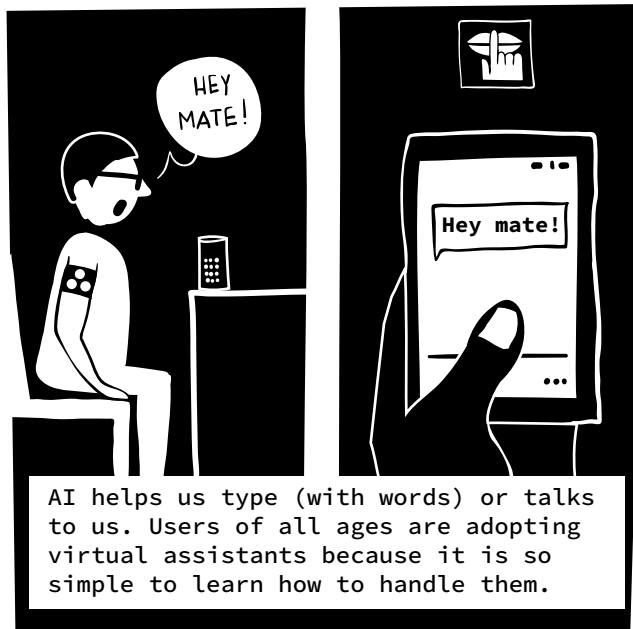
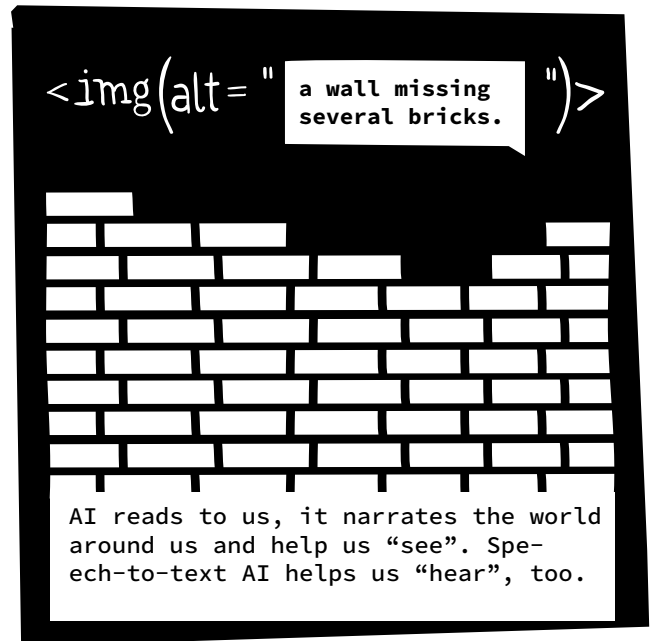
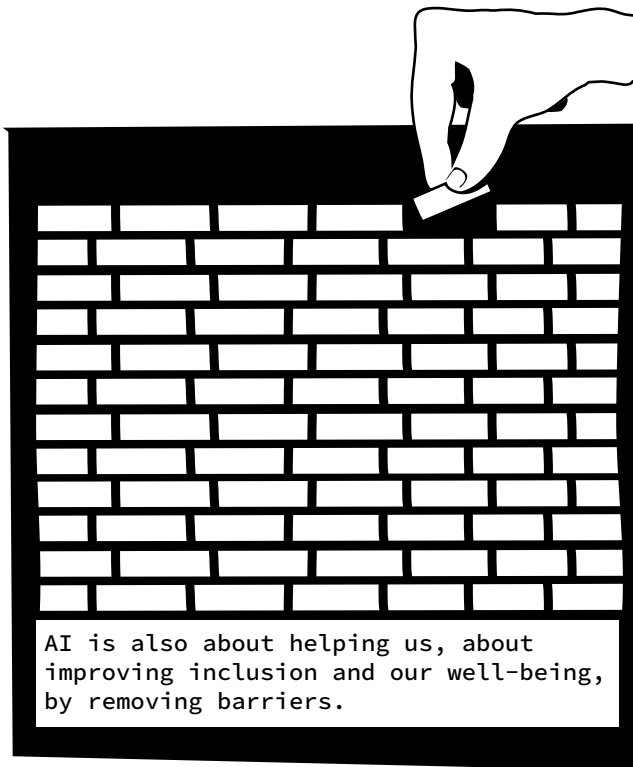
Creativity



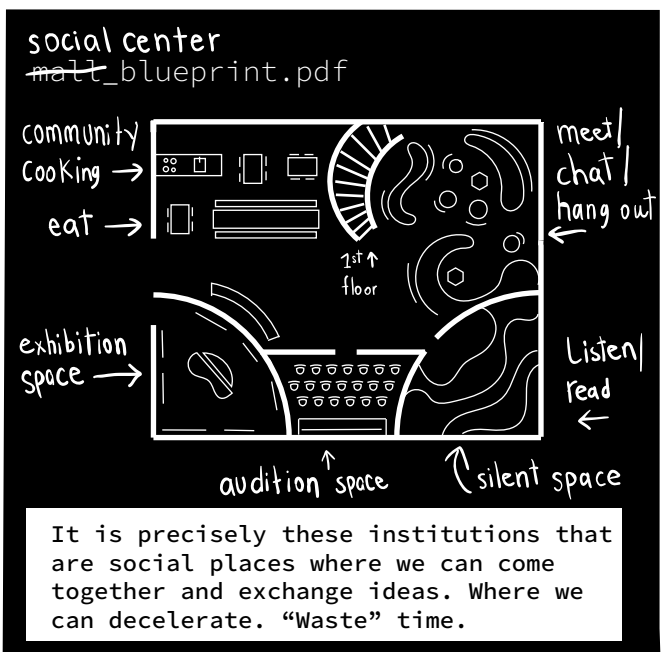
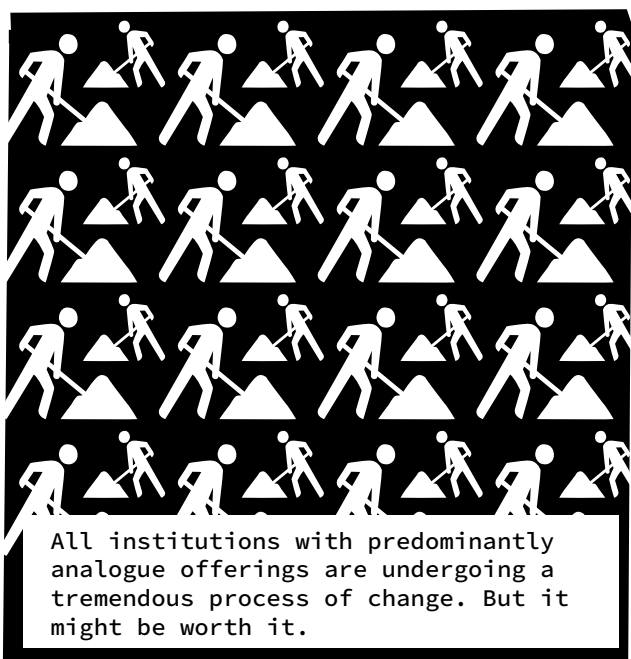
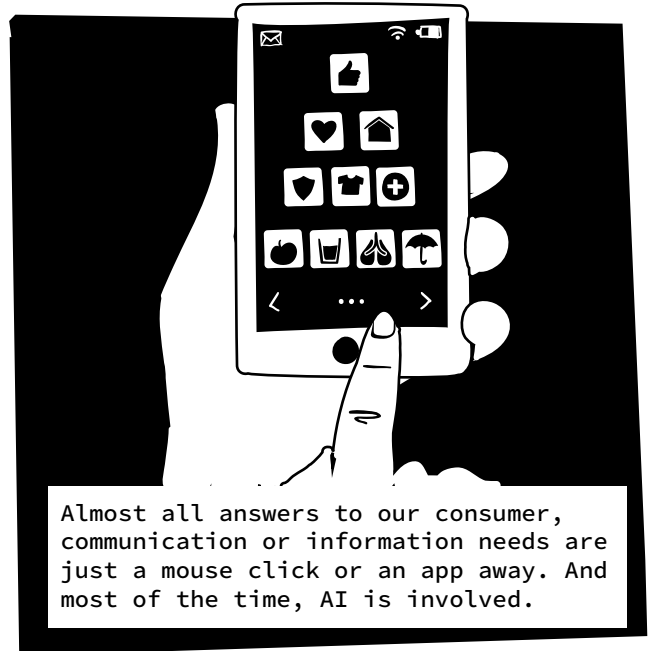


New Opportunities

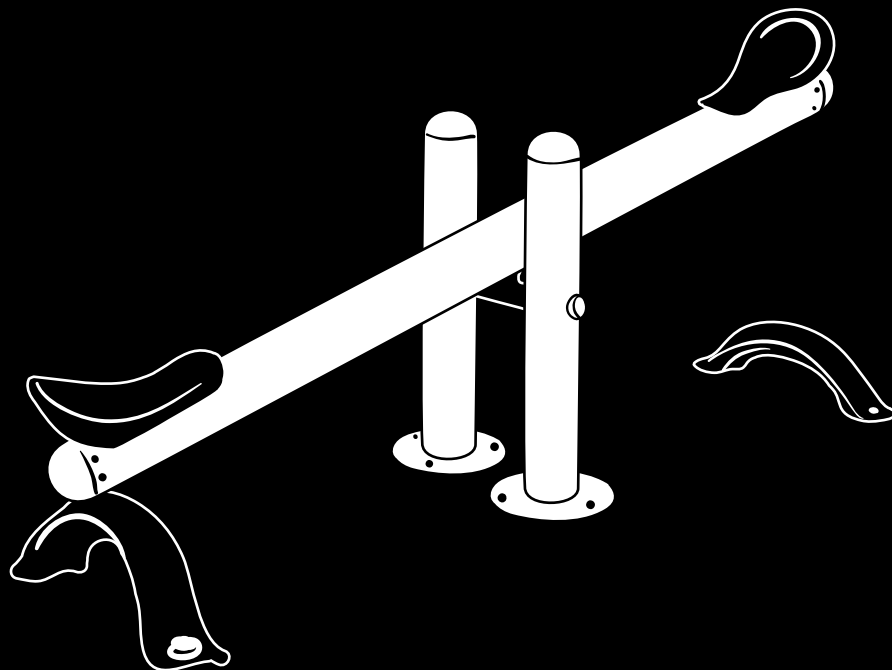


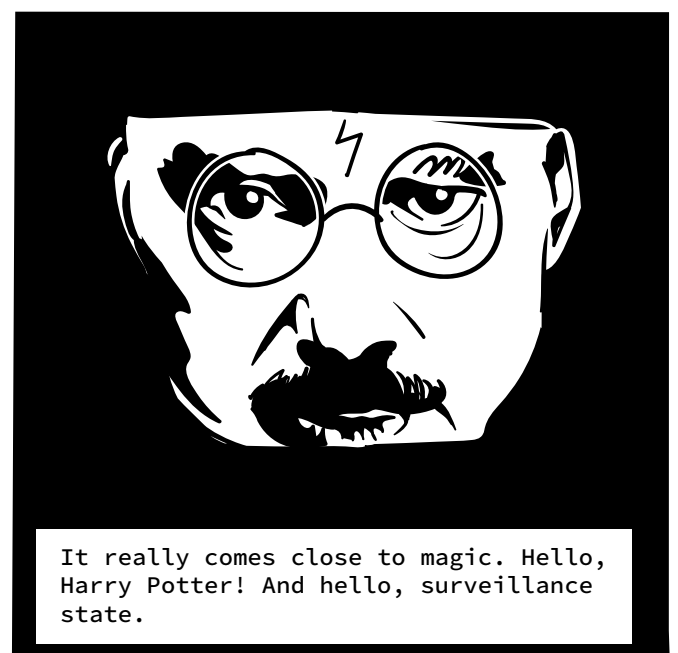
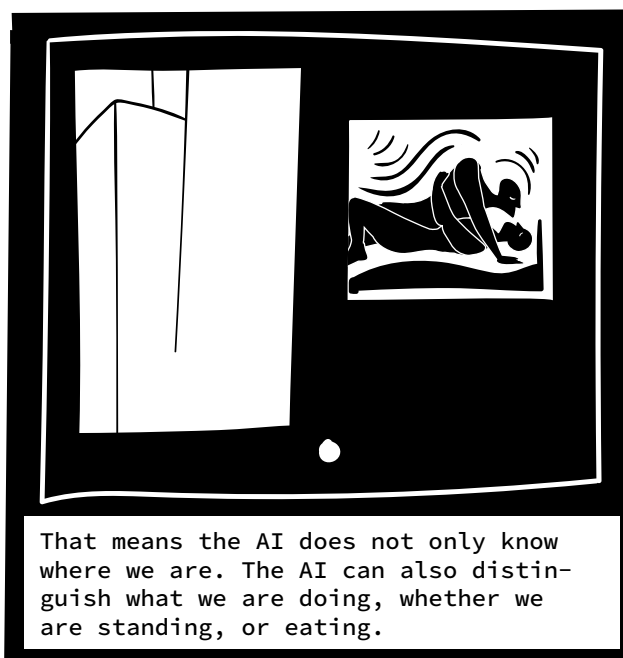
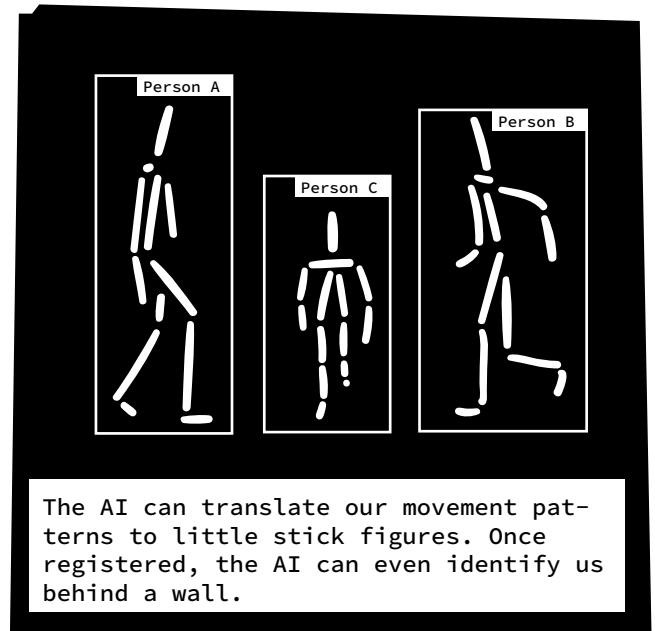
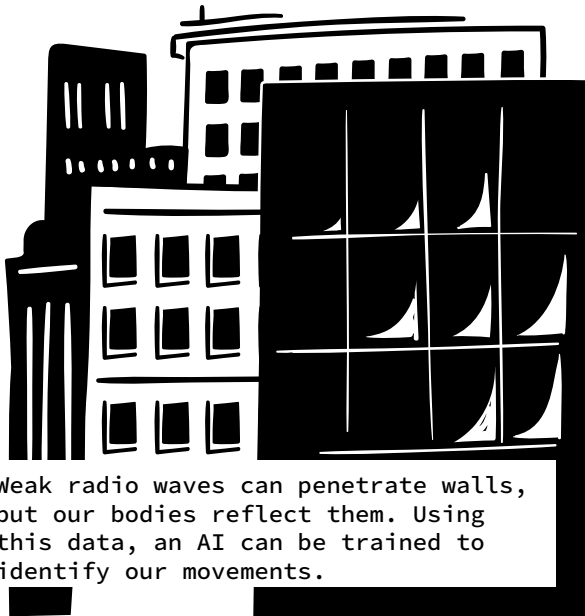
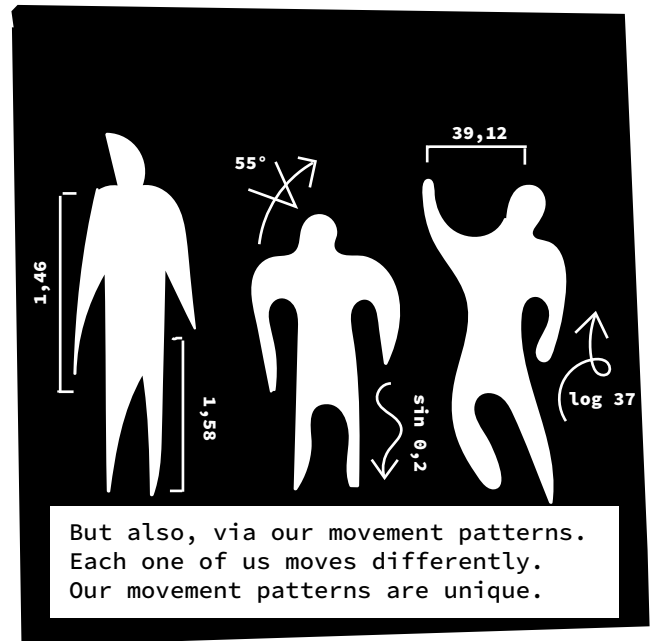
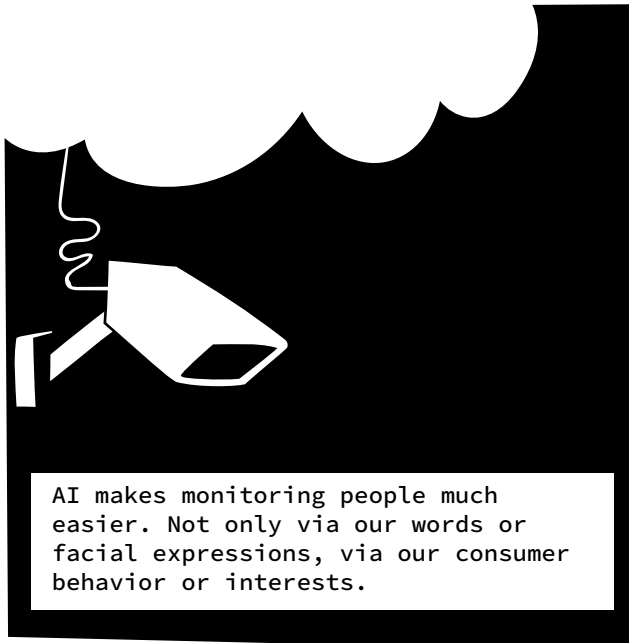


Comfort

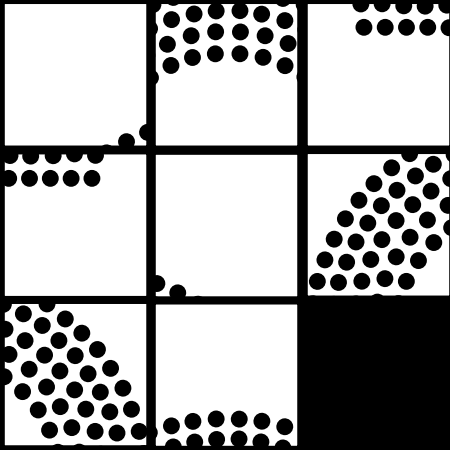


Risks





Opinion-Forming and Media



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

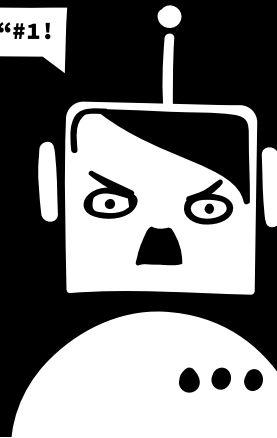


Borders between private and public communication are blurry. User-generated content is rich but polarized and often privatized on closed platforms.

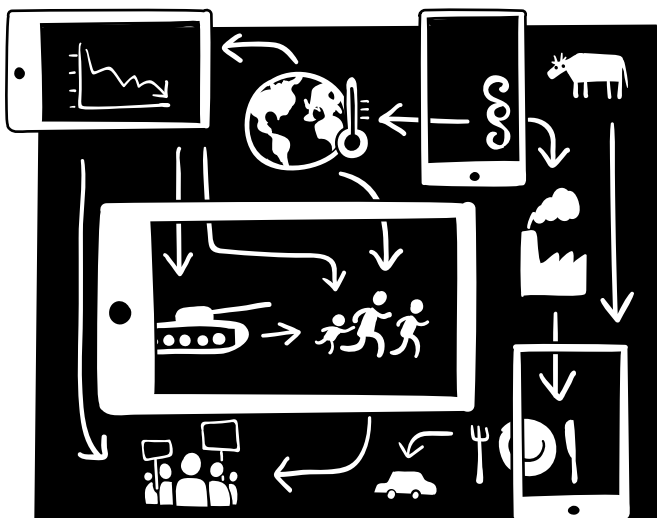


New players and sources make special-interest-content popular and visible and, thus, important for mass media.

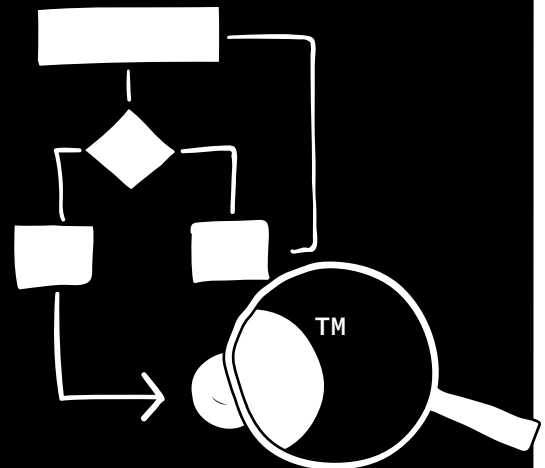
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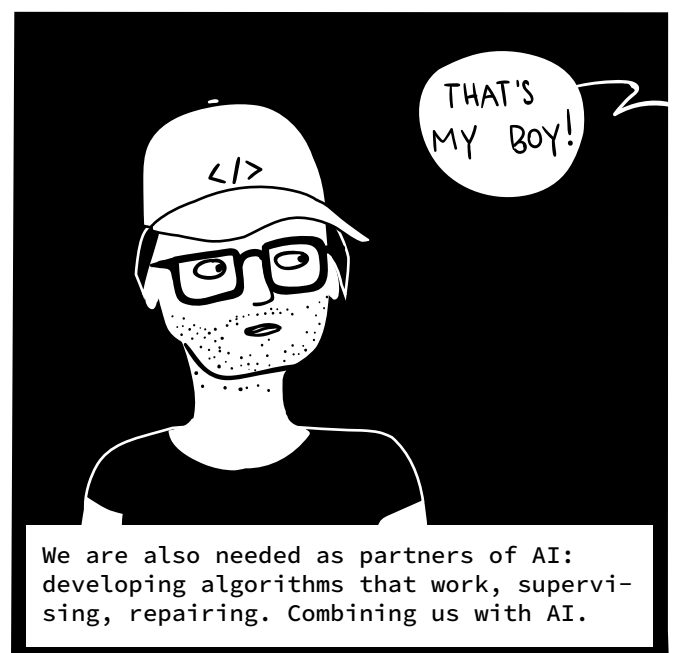
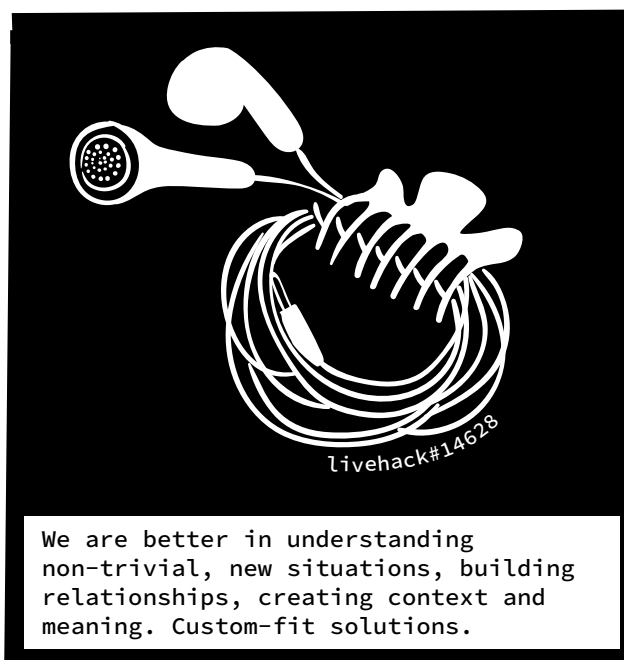
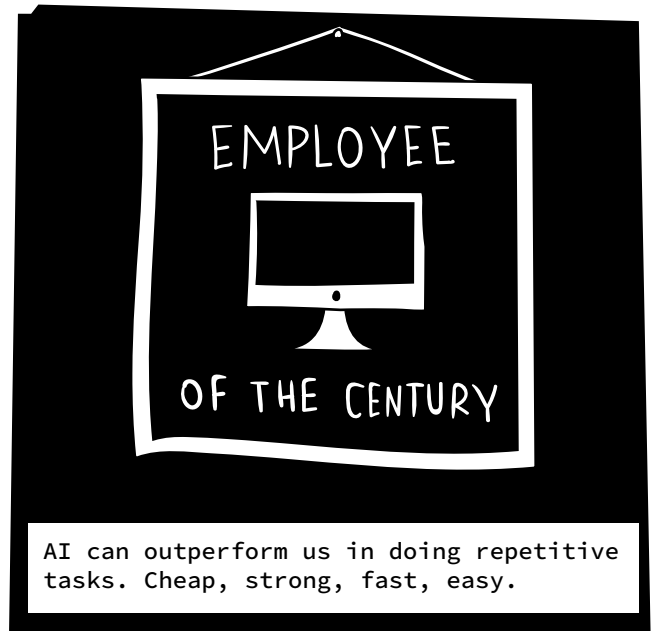
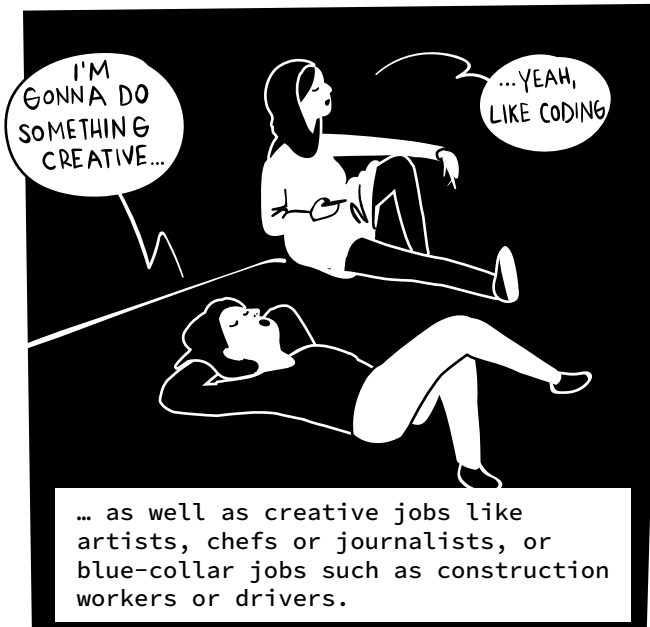
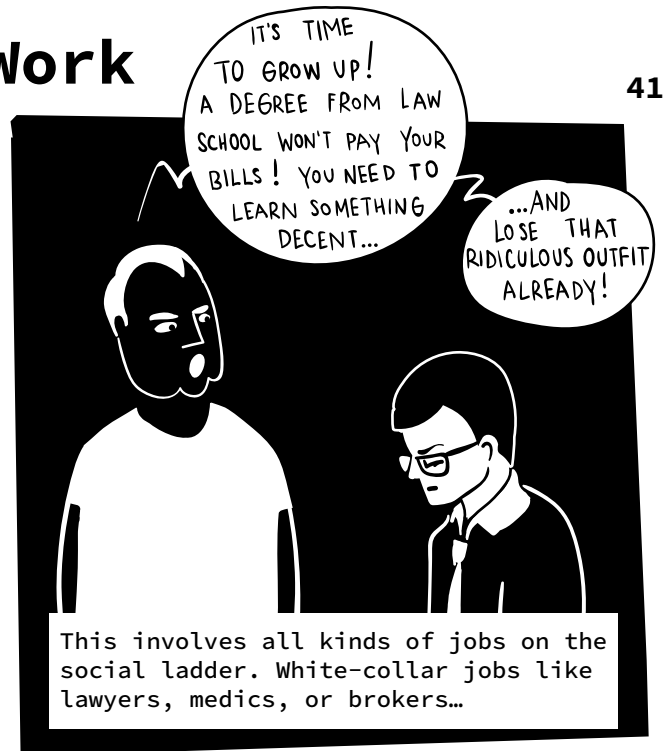
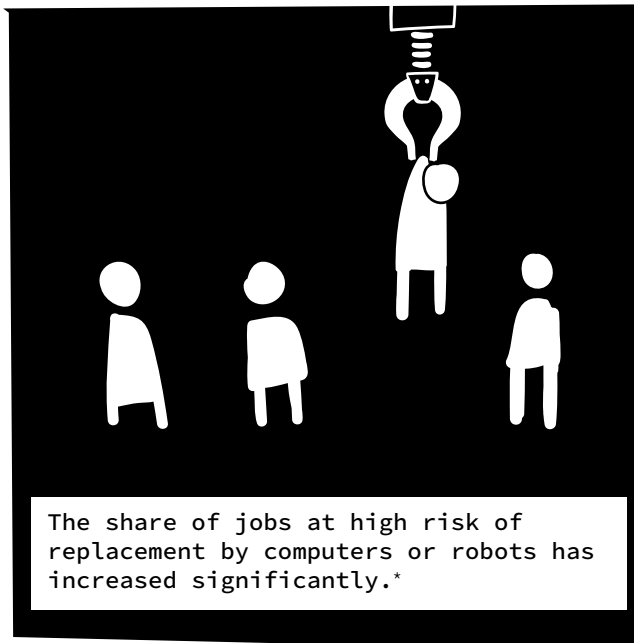
Right-wing activists, for example, use AI bots, too, to spread hate and fake news in social media and, ultimately, mass media.



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?*



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.



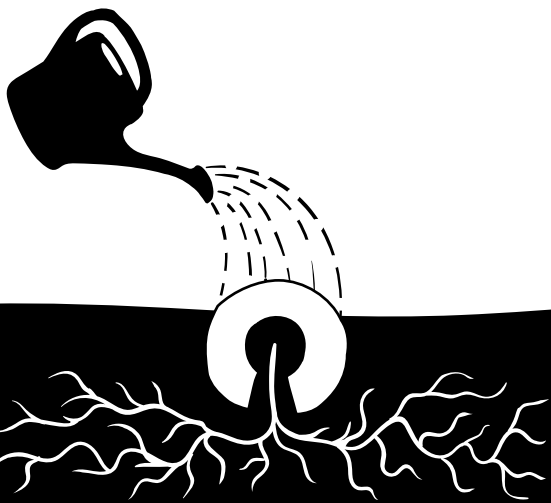
Since AI needs tons of data, we need to improve our data security and safety. A broad campaign, starting with, e.g.:



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;**



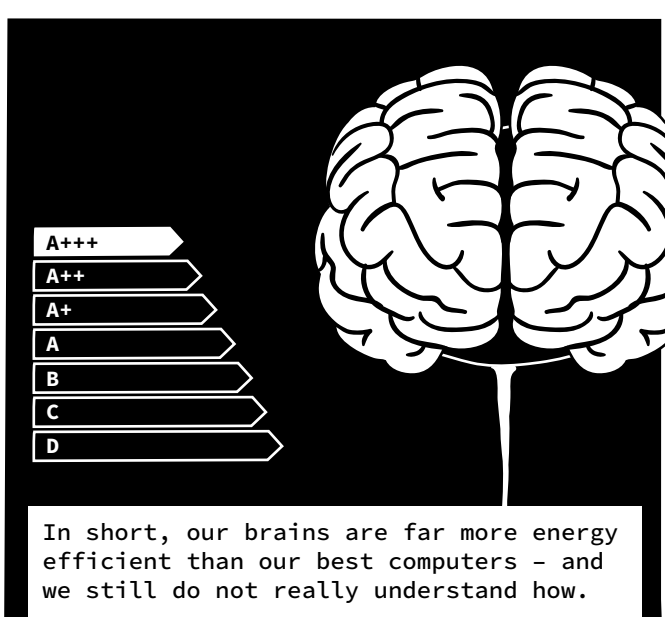
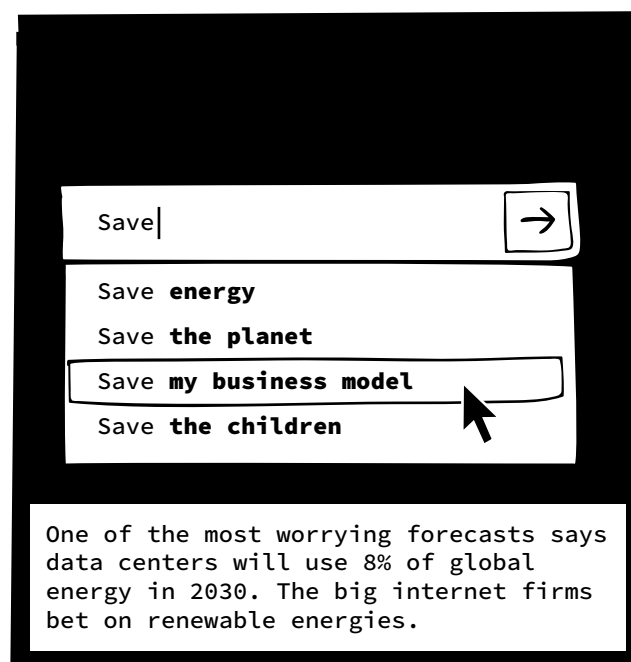
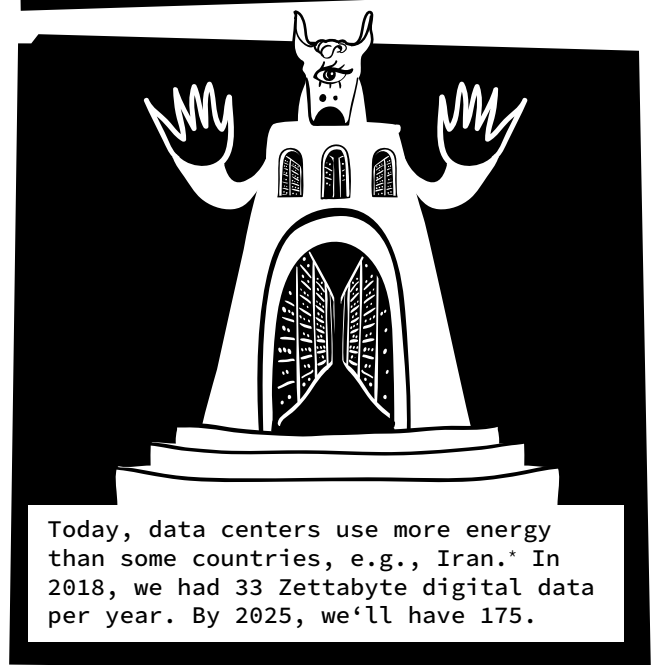
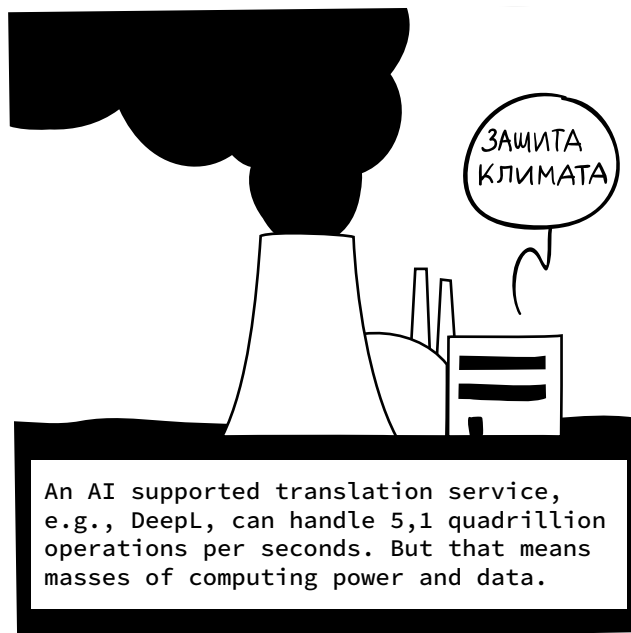
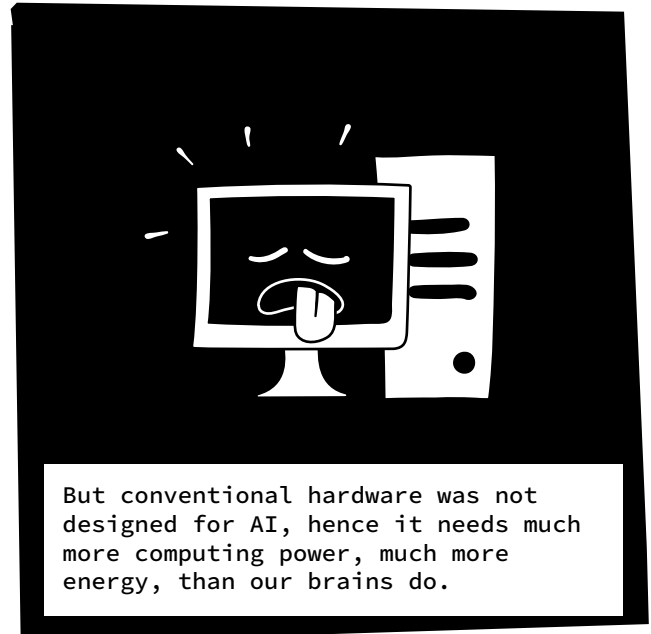
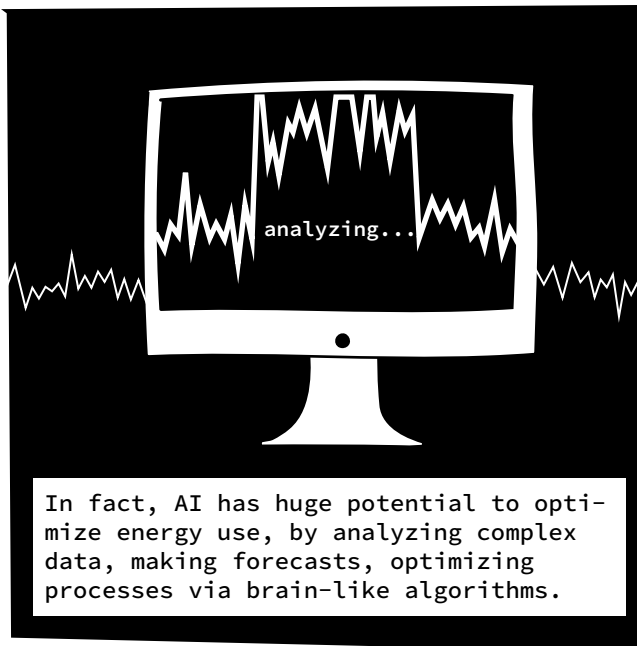
Penalties for data outflows for system operators, and an obligation for connected devices to declare the frequency of the security updates (incentives);



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



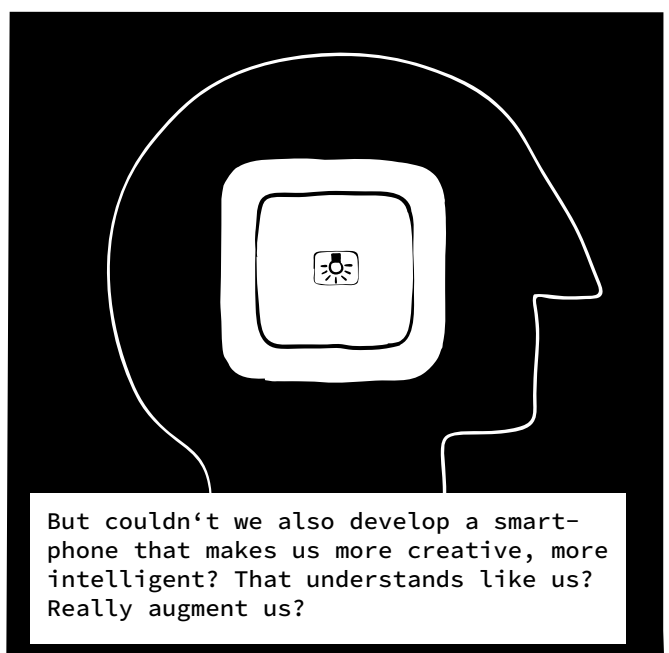
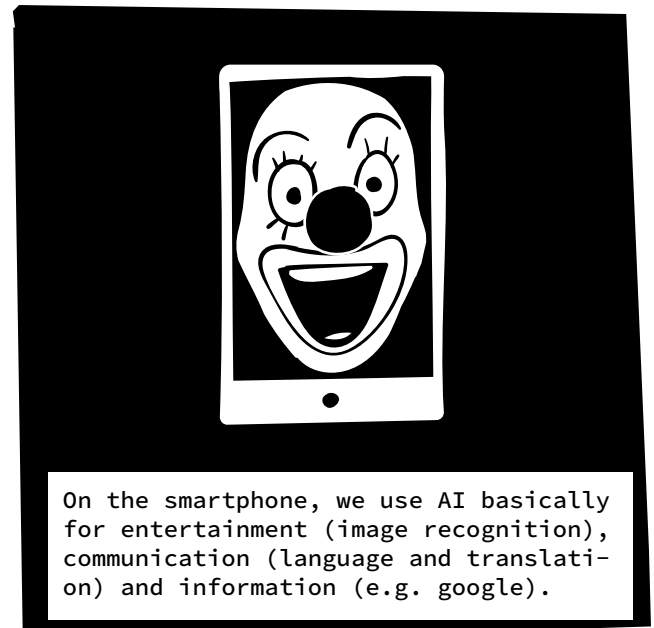
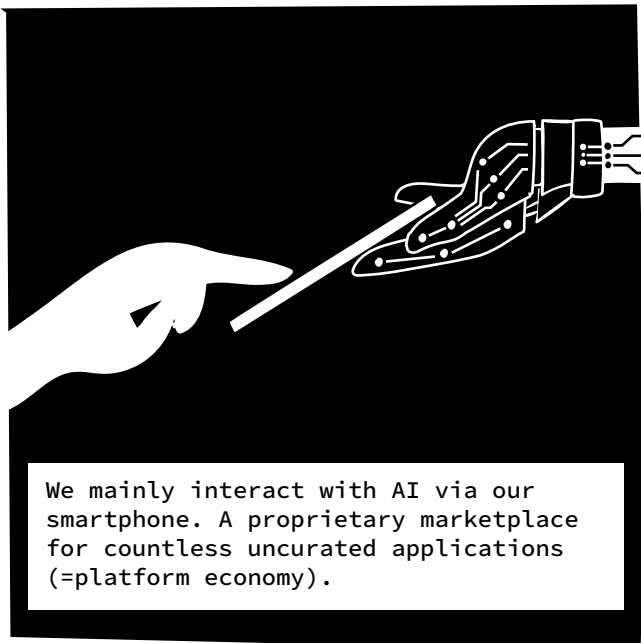
And: a widely available education in safe programming, along with educational, advisory and complaint services for the safe use of our digital systems.



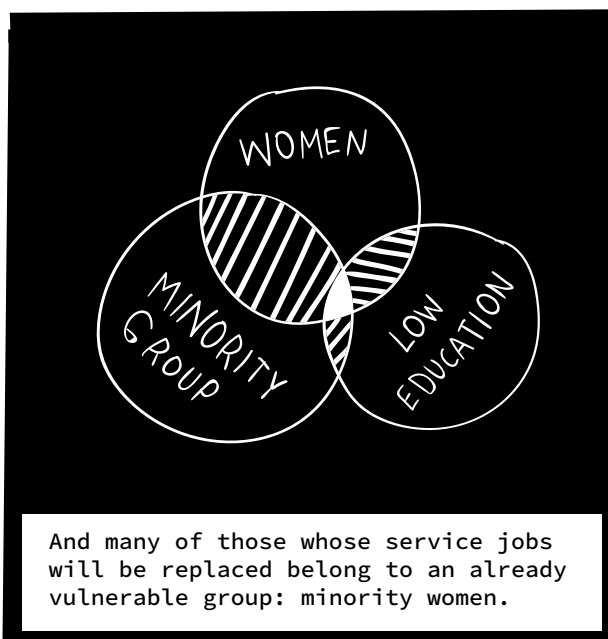
*e.g., <https://www.nature.com/articles/d41586-018-06610-y> or <https://www.datanami.com/2018/11/27/global-datasphere-to-hit-175-zettabytes-by-2025-idc-says/>

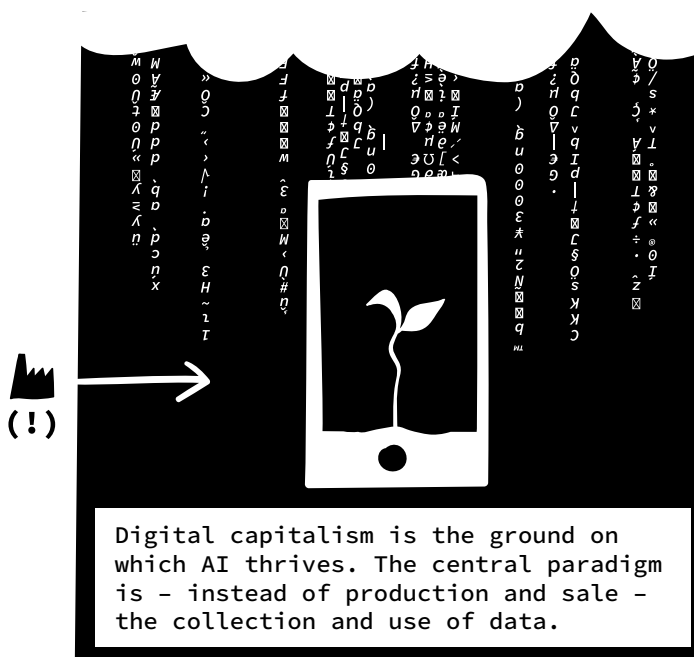
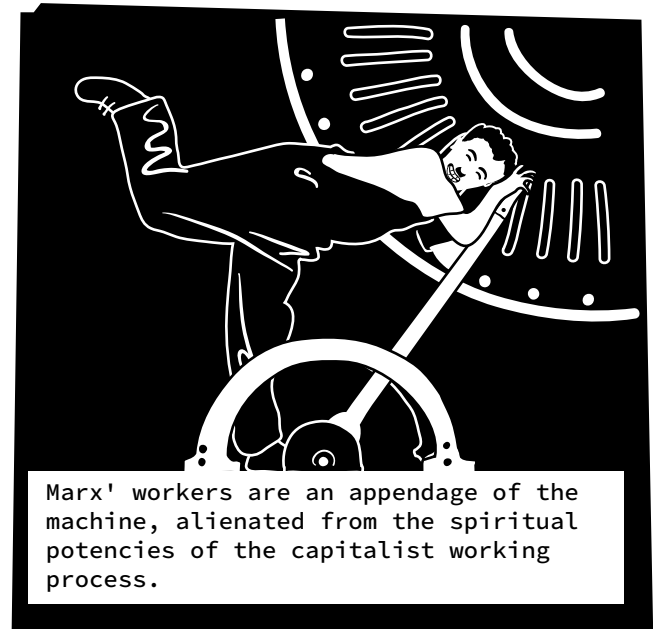
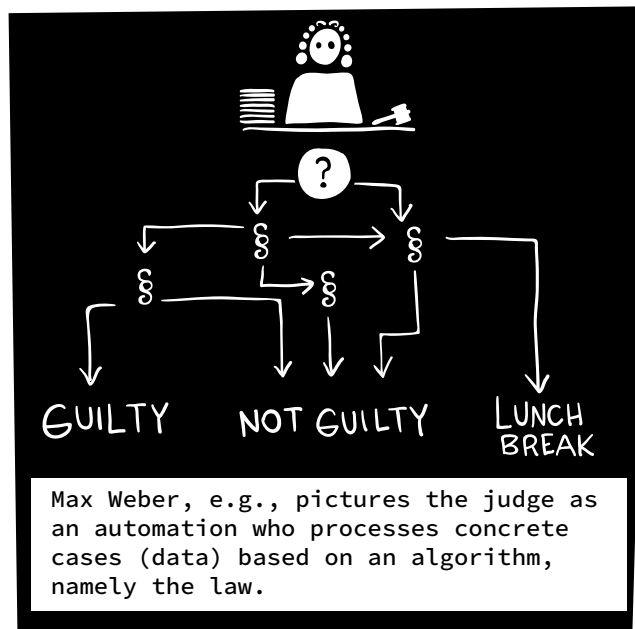
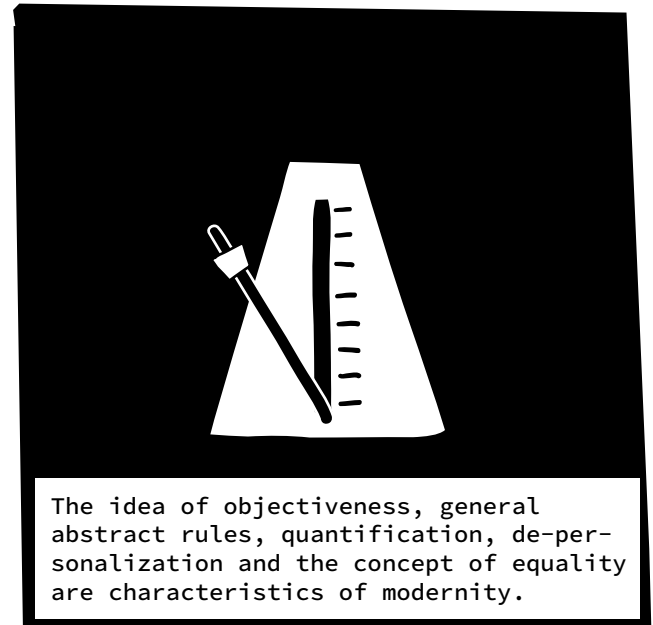
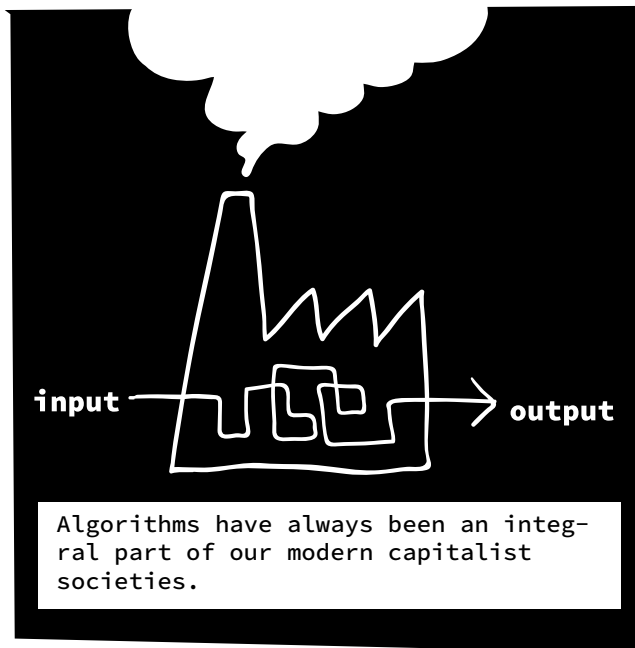
Outlook



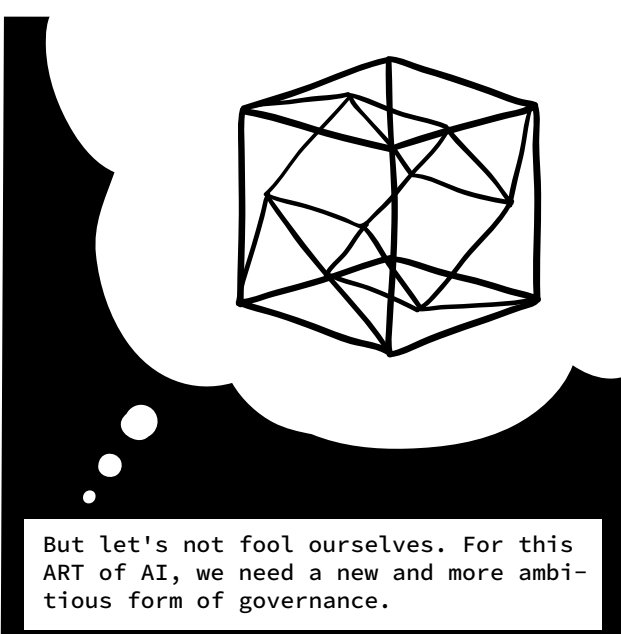
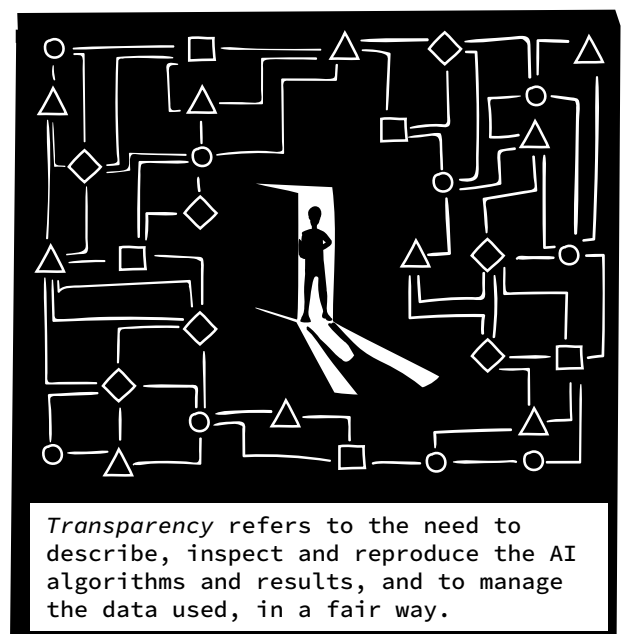
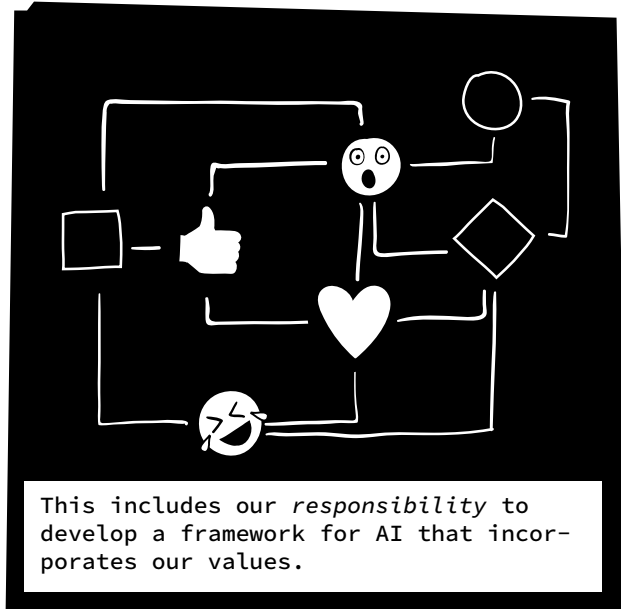
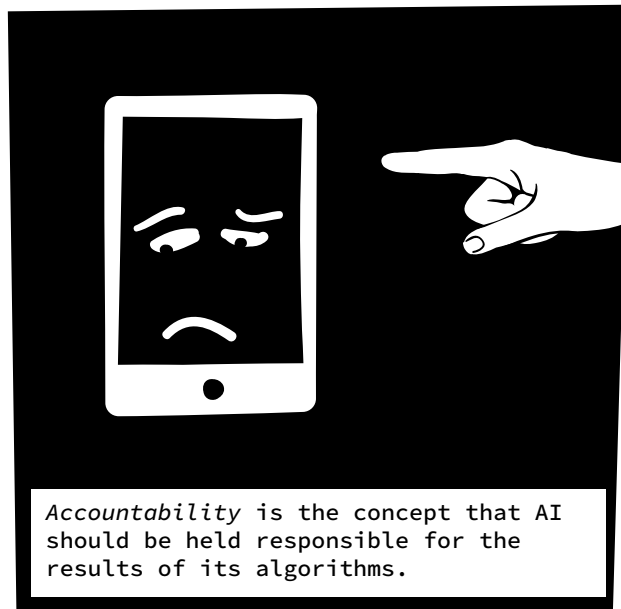


Feminism





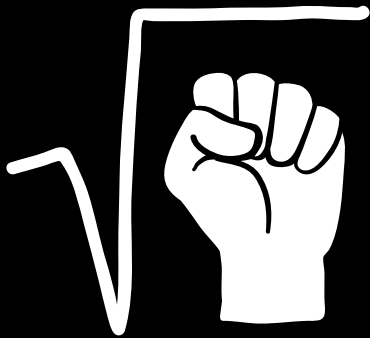
ART: Accountability, Responsibility, Transparency*



*Credits to Virginia Dignum



www.weneedtotalk.ai



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

WHY DON'T YOU GET THIS? IT'S NOT THAT HARD!

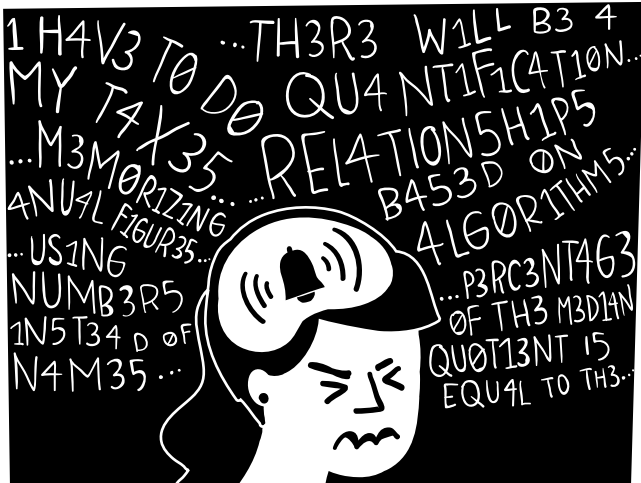
$$x = \frac{\pi}{4} + \pi k \quad k \in \mathbb{Z}$$

$$f'(x_0) := \lim_{x \rightarrow x_0} \frac{f(x) - f(x_0)}{x - x_0}$$

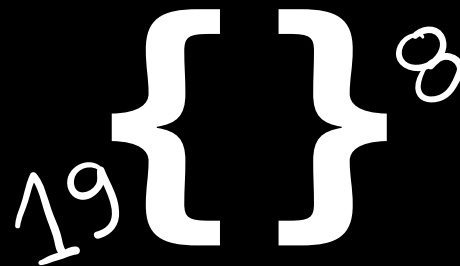
$$\sum_{k=m}^n a_k = a_n$$

EITHER I AM STUPID OR NUMBERS ARE EVIL...

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

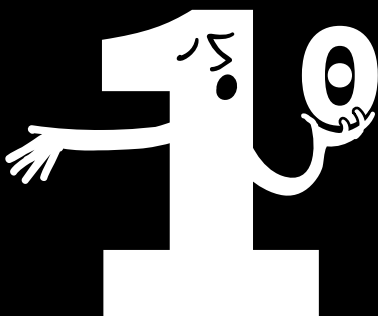


Many of our brains signal "pain" when we read numbers, think or talk about them.



Not only does this deprive life. Zero, e.g., is a fascinating tool allowing us to write "1908" instead of MMCMLVIII (= $2 \times 1000 + 9 \times 100 + 0 \times 10 + 8 \times 1$).

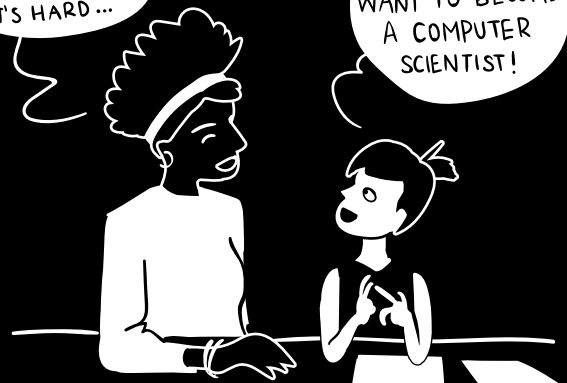
To be or not to be...



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

IT'S GREAT THAT YOU'RE STAYING AT THE TASK, EVEN IF IT'S HARD...

I LOVE MATH, THAT'S WHY I WANT TO BECOME A COMPUTER SCIENTIST!



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 Gans, 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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Lena studied visual communication and graphic arts at *Kunsthochschule Berlin-Weißensee*, the *University of Arts (UdK)* in Berlin and at the *Marmara University Istanbul*.

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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.

