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Artificial Intelligence Driven Design.

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awwwards.books



Brain food — Vol 4

Chapter 1.

AI

DRIVEN

DESIGN

**This first chapter was written
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in collaboration with Chris
Duffey Head of AI Strategy &
Innovation at Adobe,
and Awwwards.**

Chapter 1.

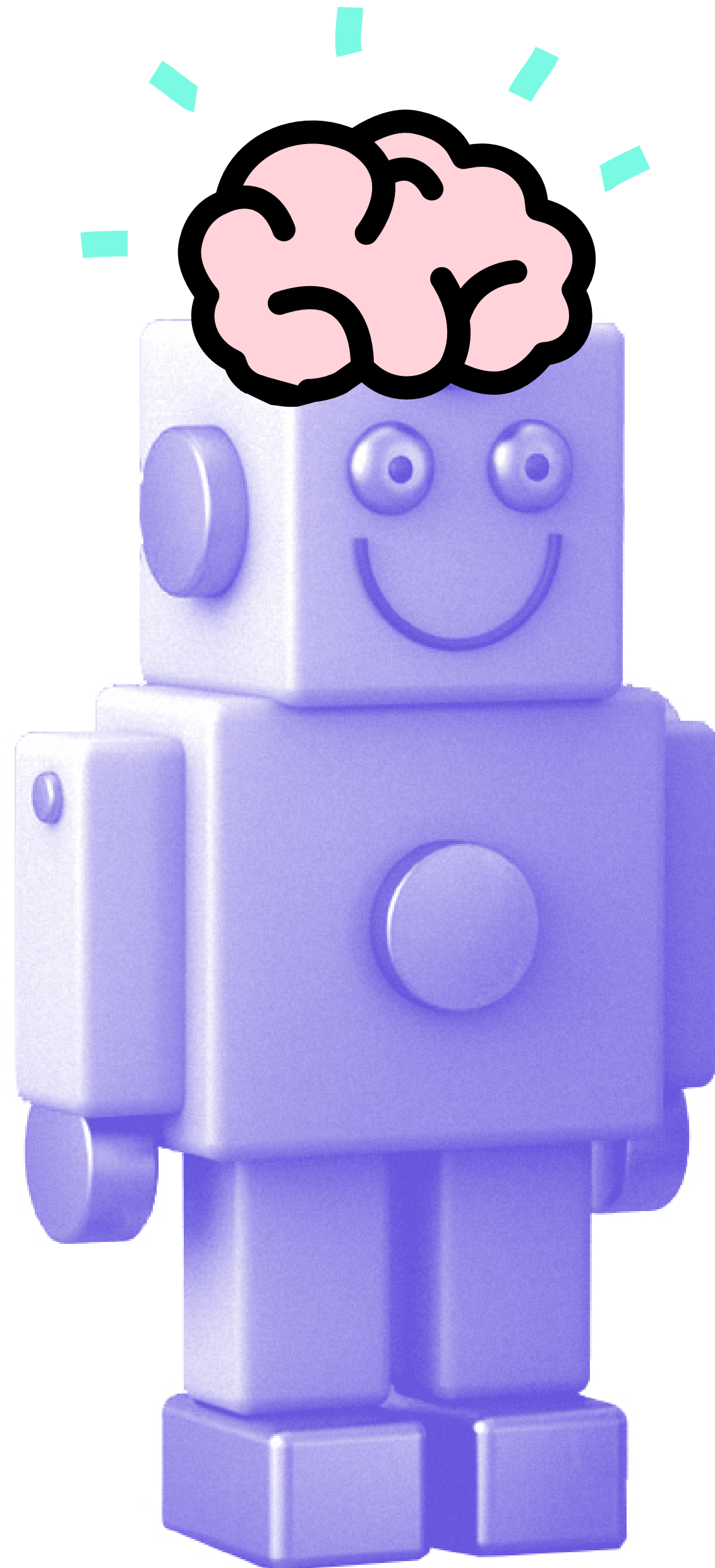
- Introduction
- What is Artificial Intelligence?
- Changing Relationship with Technology.
- Ethical Challenges
- Designing for AI
- AI Design Principles

Introduction.

Technology has always been the driver of great breakthroughs and innovations. As creators, we are currently living in one of the most exciting eras where technology is making enormous leaps forward. **One of the most anticipated technological developments is around automation and Artificial Intelligence.**

AI is a much used buzzword nowadays, surrounded by misconceptions and questions regarding its purpose and power. Apart from its known ethical and philosophical challenges, AI can be the catalyst for great user experiences. This chapter provides an outline of what AI is, what its current state is, and what design challenges experts face while designing for AI.

AI will undeniably shape the user experiences of tomorrow. Therefore, this is an excellent opportunity to dive into this world and get to know its ins and outs.

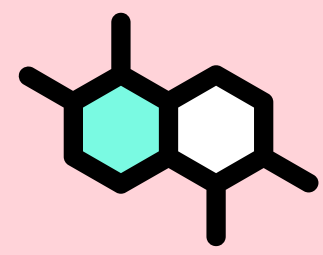


What is Artificial Intelligence?

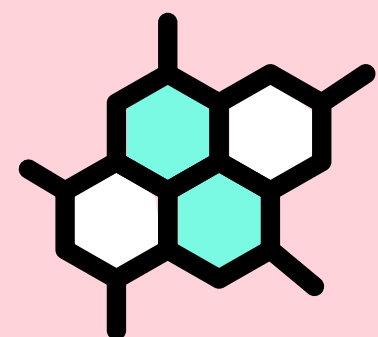
Artificial Intelligence (AI) has many faces and definitions attached to it. While most people (who aren't really familiar with AI) think it is an entirely new technological development, it actually emerged in the 1950s.

Over the years AI has been developed within the gaming industry and has now found its way into our homes and reached an all-time high in terms of advancement, funding, and enthusiasm. If you google Artificial Intelligence, you'll find many stories and future outlooks on how AI could take over jobs and even how AI could eventually destroy humankind. **The fact is, Artificial Intelligence is far from reaching human-like general intelligence.**

There are three kinds of AI according to Chris Noessel:



Narrow artificial intelligence:
intelligence focused on narrow tasks. Meaning it can learn and infer, but not generalize.



General intelligence:
is more self-supporting and has also the ability to understand meanings within contexts.



Super intelligence:
would surpass the intelligence of humans.

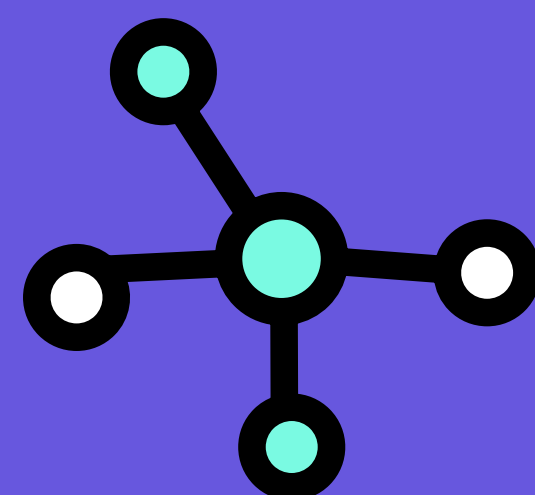
So while it is far from reaching super intelligence, AI is getting better and better at accomplishing narrowly defined tasks. This creates great opportunities for creators and users to make experiences more seamless, efficient and meaningful.

Main AI Characteristics.



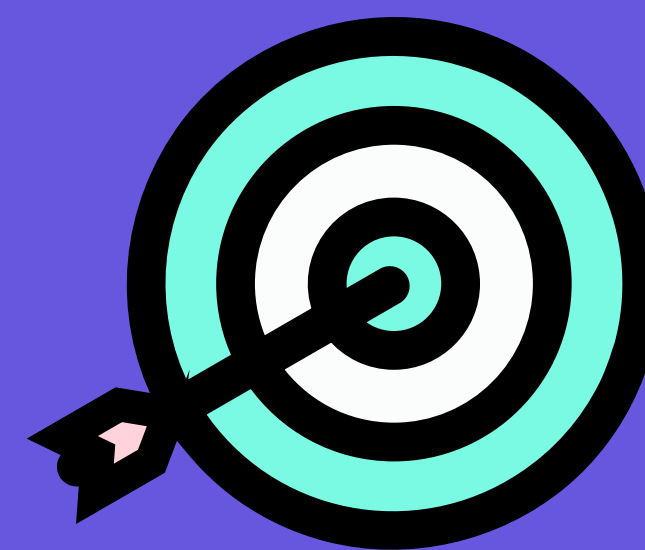
1.

AI is largely based on data.



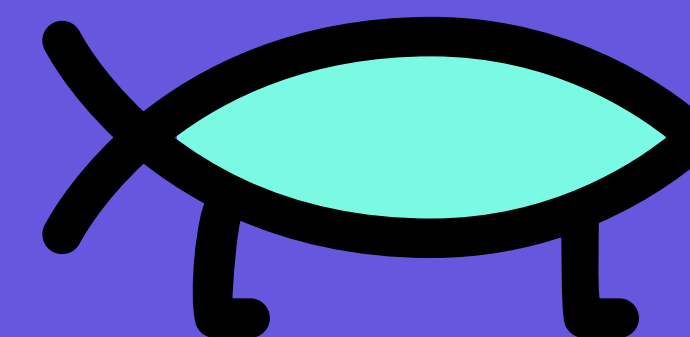
2.

AI abilities are not programmed but learned.



3.

AI is narrow and very focused.



4.

AI is an evolving term.

1.

AI is largely based on data.

Data is vital for the advancement of AI. Without data, this wouldn't be possible. There has been much controversy around collecting data in general, and the creative community have a big responsibility in how we deal with data.

2.

AI's abilities are not programmed but learned.

AI learns and improves along the way, without being programmed. It learns from failure and experiences. The more AI executes a specific task, the better it gets.

3.

AI is narrow and very focused.

AI is good at accomplishing pre-defined specific tasks. Uncovering patterns and finding correlations for example.

4.

AI is an evolving term.

As mentioned before, AI has many faces and conceptual angles to it. From narrow to super intelligence. This means that the meaning and definition of AI can vary per person and is mostly relative to the view that a person has on Artificial Intelligence. This misconception/misalignment of what AI is, is likely to continue since it's technologically evolving day by day.

Changing Relationship with Technology.



Artificial Intelligence has been disruptive on a technical level but has also made a significant impact on a societal level. The way we interact and how we relate to machines is rapidly changing.

Basically, AI is everywhere. On our phones, in our houses, watches and even in our cars. The presence of AI changes our interactions and relationship with technology. We used to conduct many tasks ourselves, nowadays we give voice commands to a smart assistant and let it do the job.

AI-driven products like Google Home, for example, are nicely tapping into this space and influence our behavior and perceptions already.

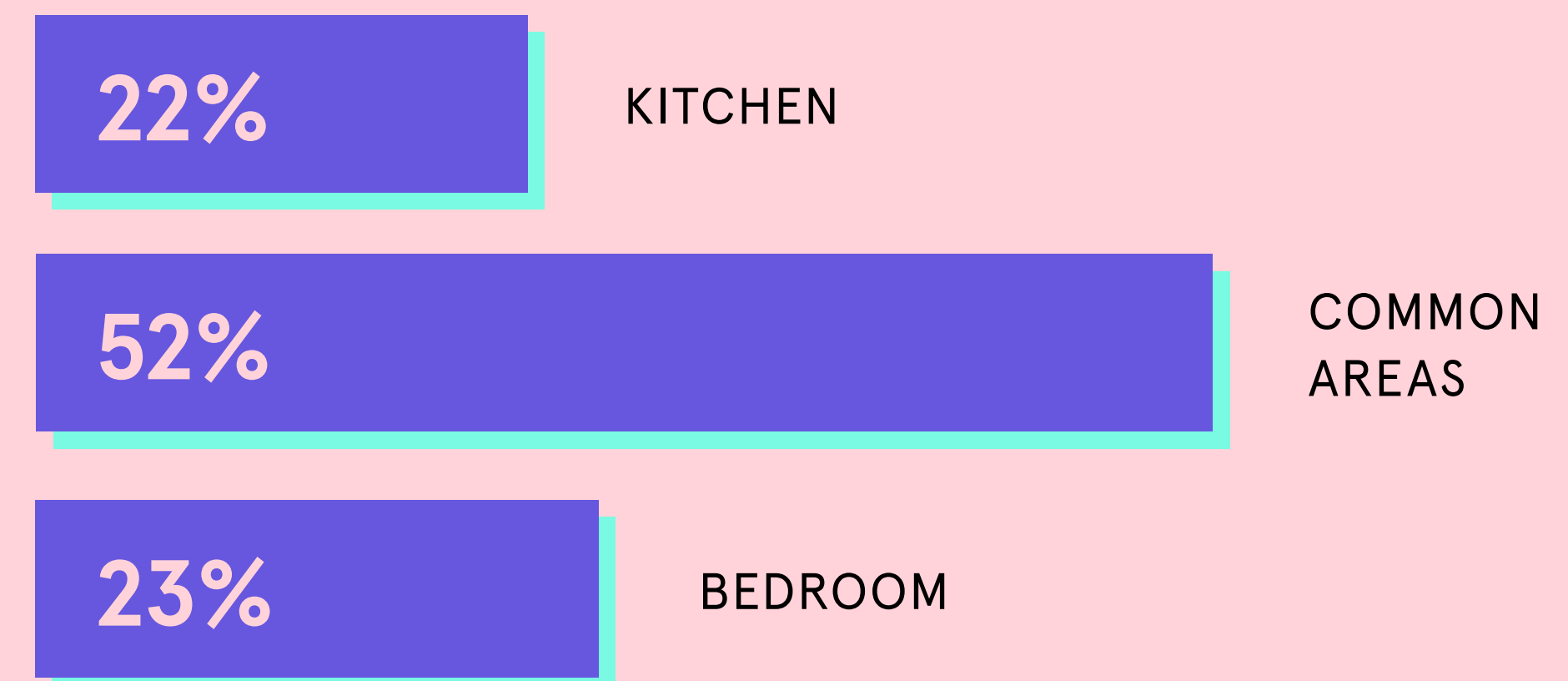
There's a noticeable mind-shift going on, and products like Google Home have a more prominent place in households.

AI-driven products have become more popular, and people are making more use of them than ever before.

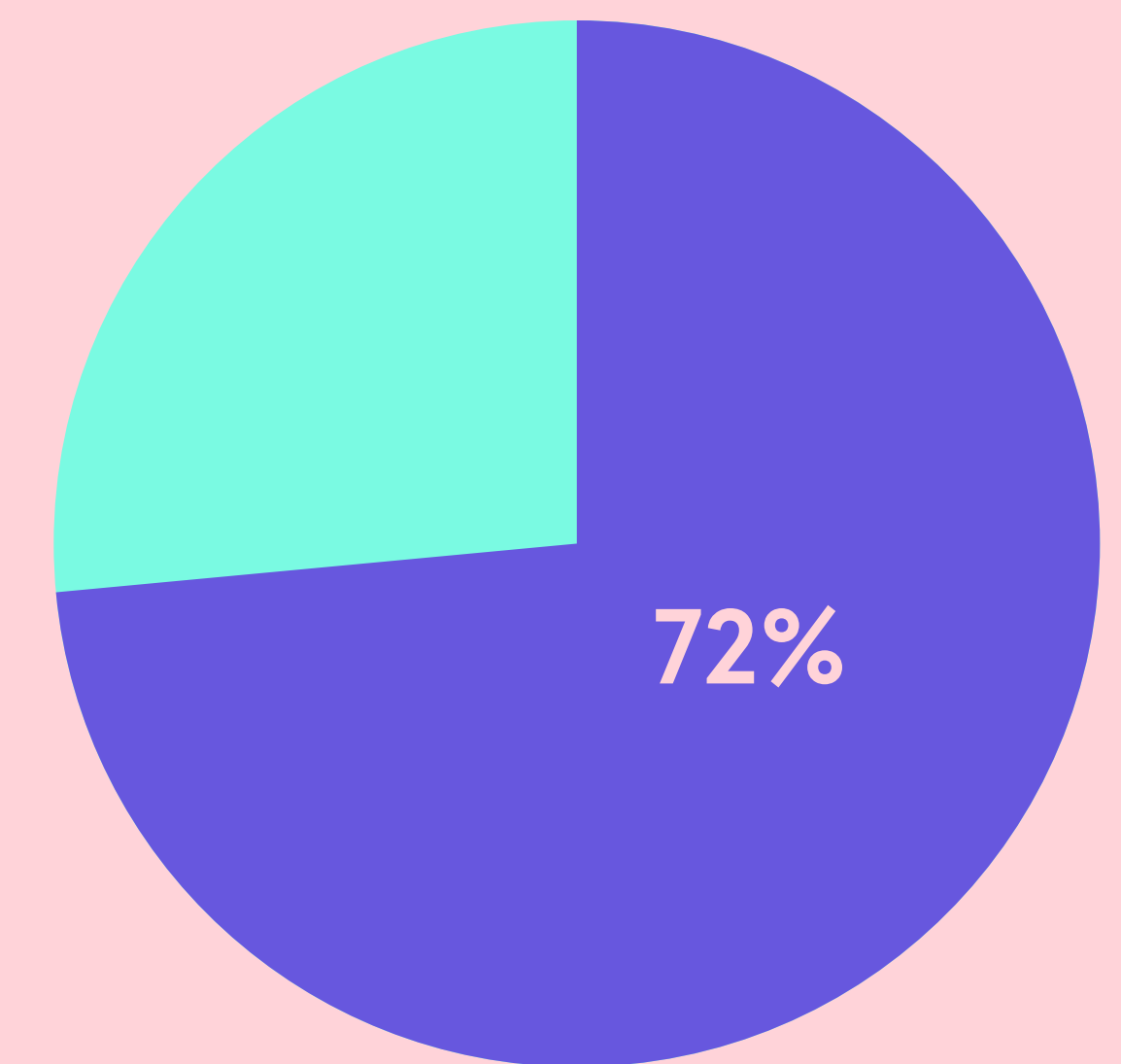
The way that people interact is also changing. Google Homeowners, for example, often use AI as part of their daily routine. Google recently conducted research on people who own a voice-activated speaker. As it turns out, Google Home has made the life of Google Home-users easier because they are able to multitask more. And more interestingly, people are engaging with their voice-activated speakers as if they were human. They're saying "please," "thank you," and even "sorry."

The following observations show an exciting development in how people relate and interact with smart devices.

Where do Google Homeowners use their AI-driven products?

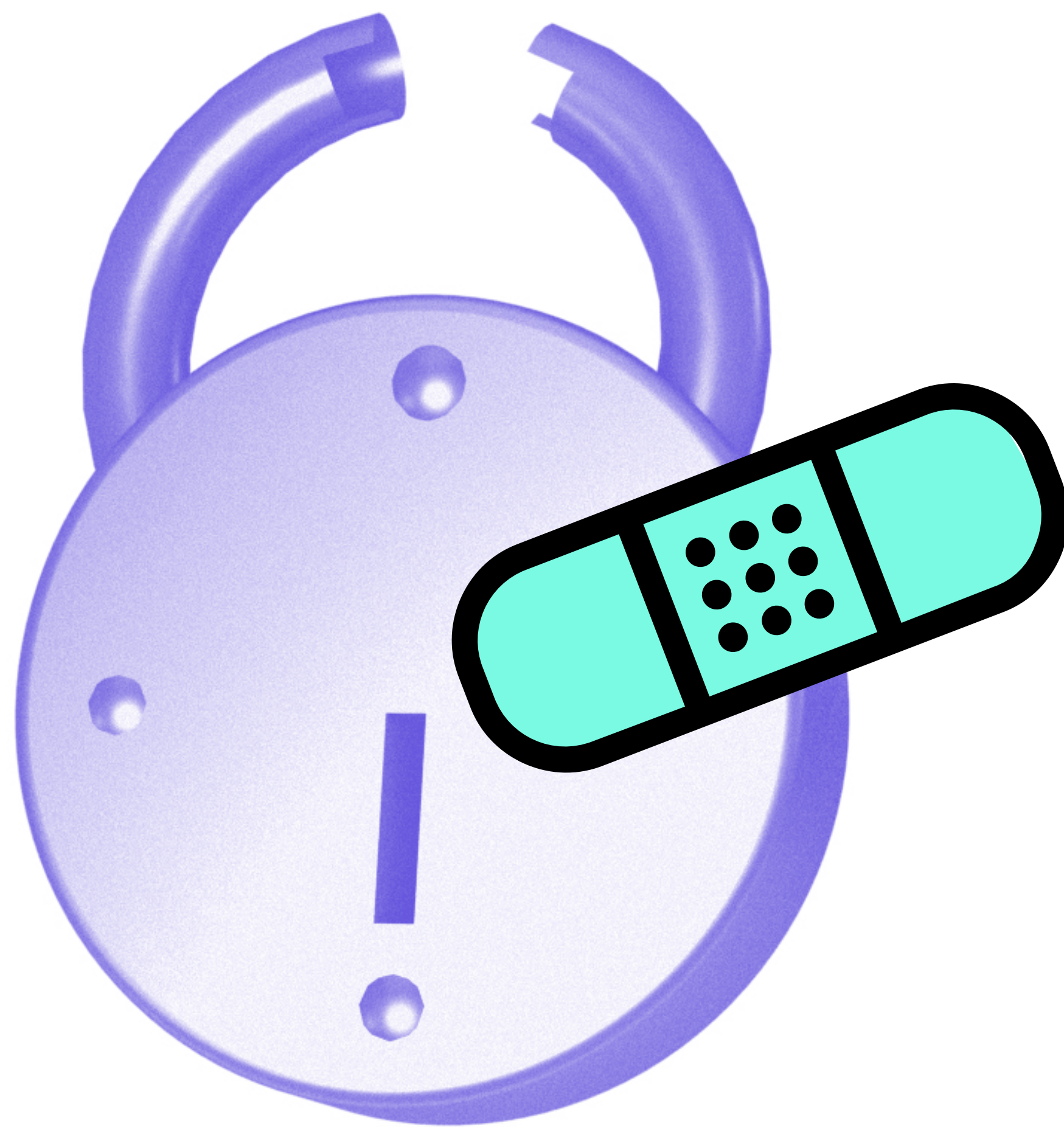


72% of people who own a voice-activated device speaker say that their devices are often used as a part of their daily routine.



(Figures: courtesy of Google)

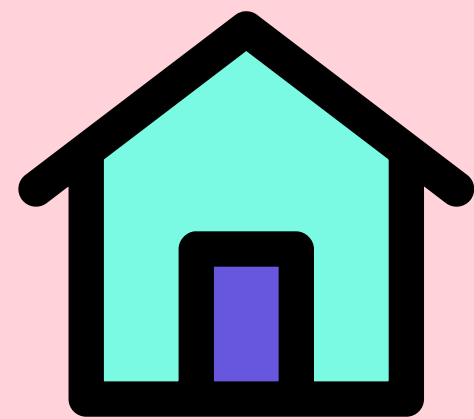
Ethical Challenges.



Developing services or products that are driven by AI-technology comes with ethical challenges. Much has been said and written over the years around the danger and purpose of AI. **Chris Duffey, Head of AI Strategy & Innovation at Adobe** had an interesting view on AI's intent. He said: "technology is neither bad or good, it is really a reflection of the human that is creating it". This statement points out perfectly what responsibility we have as the creative community. The development of AI-technology relies on trust. This is because the development of AI is dependent on data. Without data, an AI wouldn't be able to make predictions.

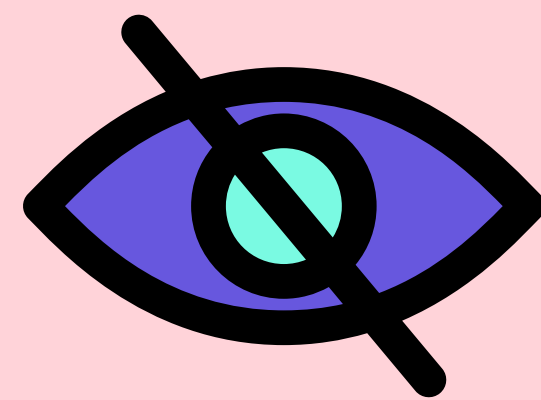
Ethics is a growing issue within the creative industry and rightly so, because much of users' data has been misused by parties in the past who weren't very focused on data security. Housing of data is one of the ethical challenges that we as the creators community need to solve.

AI's Ethical Challenges.



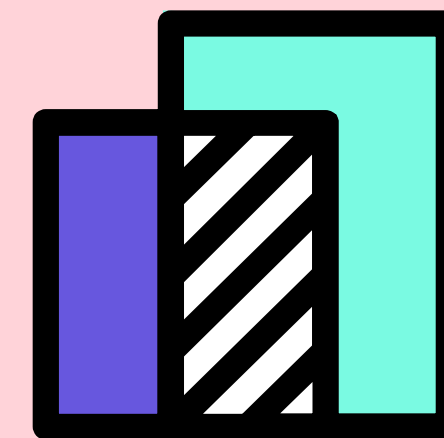
1.

**Housing of
Data.**



2.

Privacy.



3.

**Lack of
Transparency
& Control.**



4.

**Alienation
of Human
Capabilities.**

Housing of Data.

There is a general distrust from users considering the discretion behind their data-housing. There is much skepticism due to studies around illegal data-distribution that affects the trust and willingness of users. A worrying attitude because it may inhibit the development of AI eventually.

Privacy.

“I have nothing to hide”, that is what most people would have answered if you had asked them about sharing data and privacy before. This mindset has shifted slightly since userdata was massively misused by companies such as Cambridge Analytica.

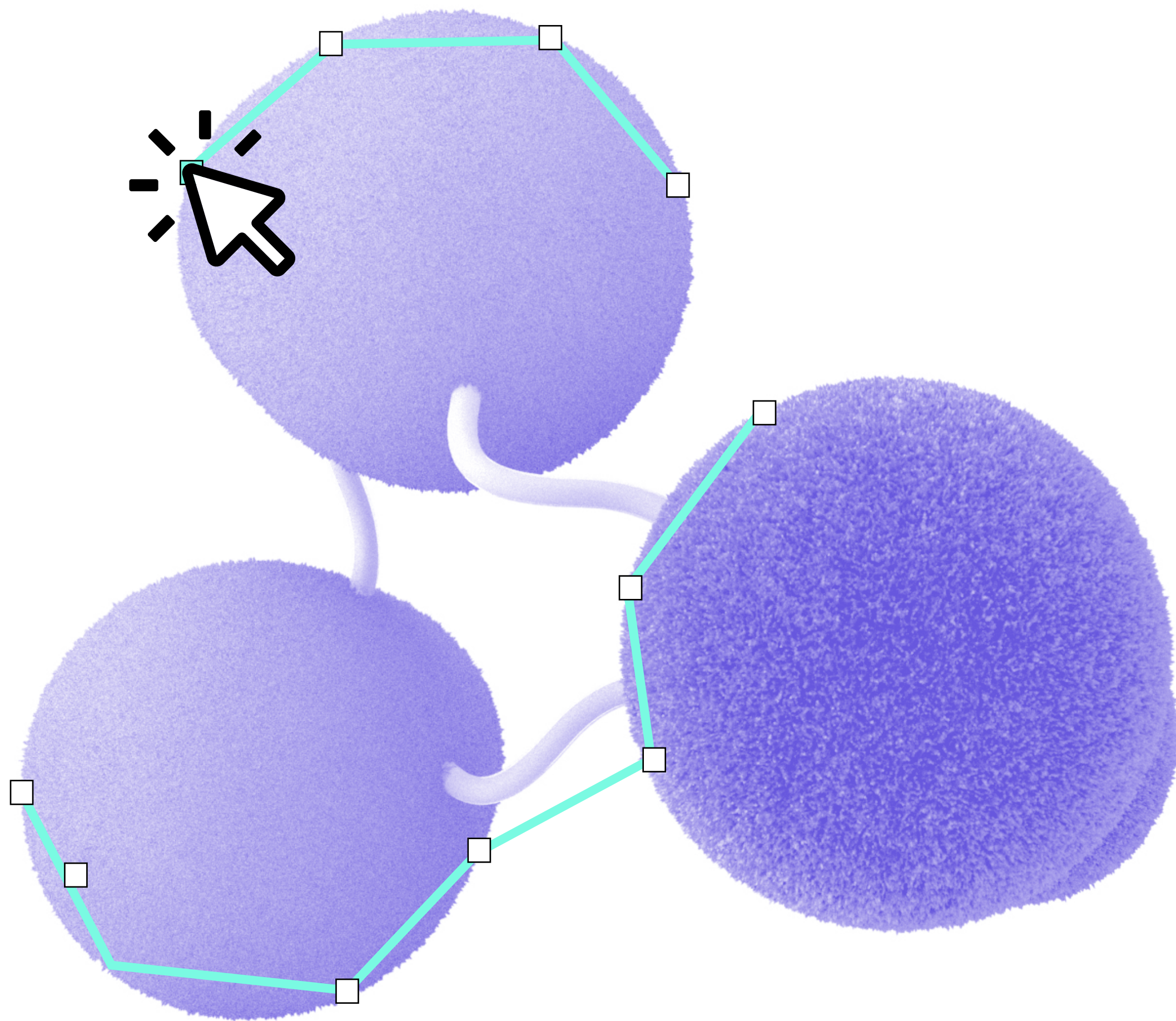
Lack of Transparency & Control.

Outcomes from AI are often perceived as a black box. Users will receive content based on their patterns without actually knowing how and why. Studies show that users value transparency and control. They like to be in control and understand the results/actions that stem from AI-driven services and products.

Alienation of Human Capabilities.

There's an overarching risk with continually distilling human knowledge and skills into algorithms. This causes a risk of users getting alienated from the distilled knowledge and skills. The more we delegate with AI, the further we remove ourselves from understanding what and why we do things.

Designing for AI.



As creators, we are constantly looking for new ways of creating our products and services. Artificial Intelligence is changing how people experience our products and is also having an impact on our design process. The possibilities of applying AI are endless and can lead to significant experiences. However, we are still in the phase of narrow-AI which means that AI currently is only useful at executing very specific tasks. This means that AI-driven products and services can amplify designers capabilities in specific ways.

Several experts in the field of design and AI are exploring what the best ways are to design for AI. What to keep in mind, what principles to follow and what ethical codes to apply.

How can AI help in a creative process?

Although technology has changed a lot and has automated a big part of our work already. The core premise of how we as a creative industry want to act stays the same - we'll continue to strive for a better user experience.

Experience Design is a great place for AI. Besides automating tasks, it can contribute by creating meaningful user experiences. AI support a creative process in many ways and can fulfill several roles. Here are ways AI can support your work:

Design Support.

Creativity still remains very much a human endeavor. However, AI can do some legwork to enable us to get up to speed. Looking at the framework of human and machine, AI can function as an assistant. It can help with research, collecting data or more creative tasks. Think of color correcting photos or cropping some assets can be one of those handy tasks that incur a lot of overheads. Other, more creative, tasks can only be done by humans because they require emotional intelligence (i.e., empathy). Adobe for example taps into this field with its Artificial Intelligence called Sensei, that will help designers become more efficient at what they do. **Sensei Stitch** helps to identify patterns in images to help designers patch. AirBnB even developed an AI that is able to recognize paper sketches and instantly turn them into code.

Curator.

What makes us intelligent, is our ability to learn. With AI, we are trying to distill human intelligence into machines, to make experiences more meaningful and personal. Data-points that feed this technology are growing rapidly, partly because of the adoption of smart technology (i.e., Internet of Things). AI, with insights from all those data points and references, can serve as a curator to determine the best personal experience per individual.

Design Systems.

AI is king in uncovering patterns and creating new ones that better suit the user. Thinking of design systems, this can turn out to be really handy. More and more companies are trusting AI to take care of their design systems to keep them more consistent for users. Hereby, an AI can even predict eventually what pattern works best based on all the user data it has received.

Enabling Creativity.

AI can be an enabler in recognizing design patterns, but can also help you to create design. Artists, creatives and developers are applying several AI technologies to enable users to be as creative as they want to be. Think of *Prismo* or *Auto Draw* as example. The amazing thing about these kind of tools is that people with less creative confidence are also able to let their imagination go.

Now that we've explored the different roles AI can take, let's investigate how we can exploit those capabilities within a design process...

AI Design Principles.

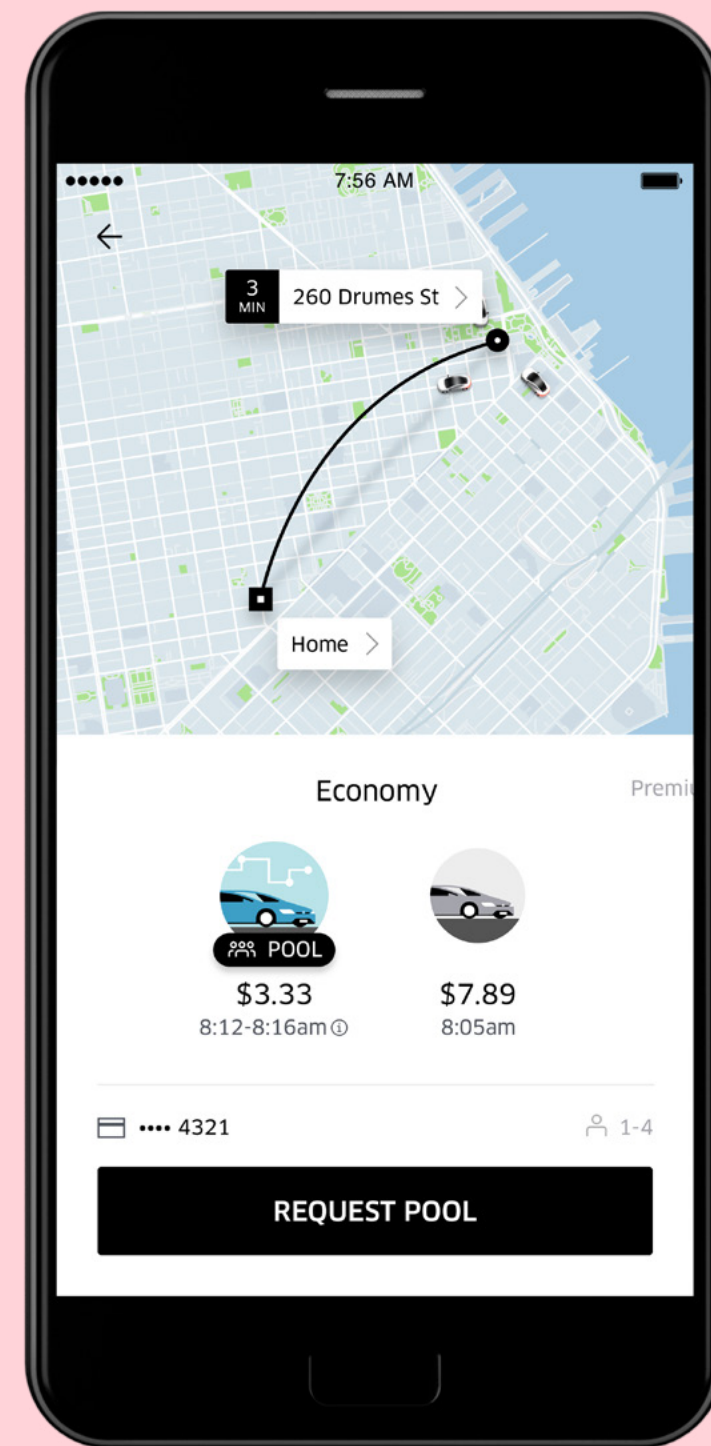
Technology will continue to advance and will continue to disrupt our lives in ways we cannot even imagine yet. As a creative community, we are shaping what AI can become in the future. We are laying the groundwork for something that could be great. But we also risk setting the stage for something that could turn out badly.

We have the opportunity to shape this future because we are at the dawn of an AI-driven era.

Instead of emphasizing extremes of what could be in the future, let's identify how we can work with AI and what principles can help this technology scale (responsibly). What these design principles could be is a burning question for many creatives. Because AI is an evolving phenomenon, it is hard to pinpoint a fixed set of design principles. The following principles have been drafted based on expert's opinions and are focused on concept and UI.



AI IN PRACTICE.



Uber removed and automated the hassle and uncertainty of calling a cab, by setting a pick-up spot and allowing people to pay within one service.

Thank you so much!

Thanks!

That's great, thank you so much!

Google's AI conducts sentiment analysis and suggests, based on the content of the received email, what response would be appropriate.

1. Minimal input, maximum outcome.

We are living in a world where phenomena such as decision fatigue are commonplace.

We get bombarded with notifications, stimuli, and expectations which we all need to manage somehow. AI can solve this problem by doing the 'legwork' for us. Think of delimited tasks which can be easily outsourced. Nest tapped into this area by setting the temperature right. Uber removed the middleman and made it easier to book a cab. Google's AI adds value in the email by suggesting automatic responses.

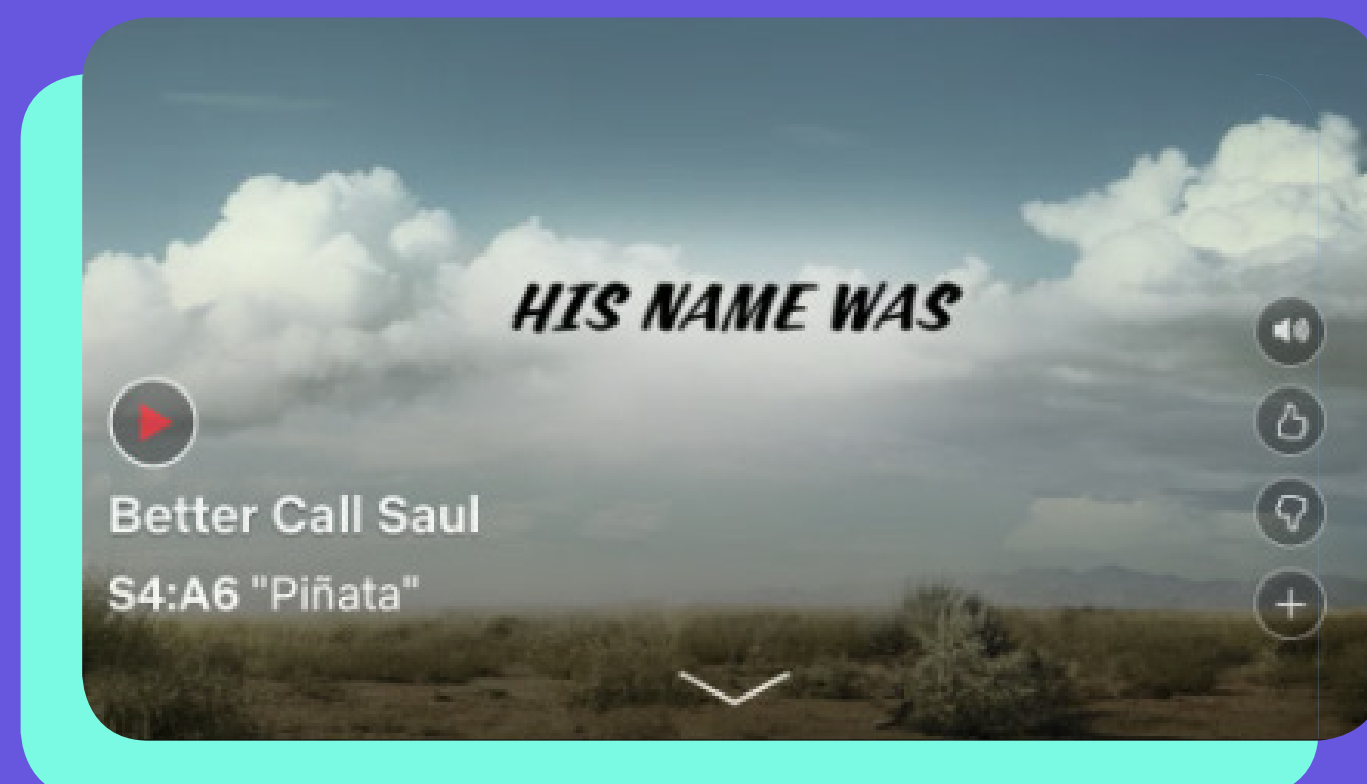
Conceptually, challenge yourself to solve significant user problems with minimal input expected from them.

AI IN PRACTICE.

twee regeringspartijen mogen dan opnieuw uitleggen waarom ze niet langer pleiten voor een ruimhartig kinderpardon. Zonder ongemak en gêne zal dat waarschijnlijk niet gaan.



Blendle provides an opportunity for users to give feedback and let the algorithm know if a kind of article works well or not. The red heart is a positive trigger, the link below forms a negative signal.



Netflix uses thumbs up or down as tool to give feedback.

2. Design for forgiveness.

Naima van Esch, a UX design specialist at Deloitte Digital explored what principles are helpful when designing for AI-enabled user interfaces.

In her personal journey, she pointed out the importance of designing for forgiveness. Because AI is certainly gonna make mistakes. As a designer it's important to ideate on how to cope with this. There are several ingredients that can work. Think of humor - which Naima pointed out - within the UI. Or with functionality whereby users are able to give feedback to systems. At Netflix you can dislike buckets of selections. Blendle you can even give feedback per article. Afterwards it promises to improve the upcoming selection according to the given feedback.

3. Design for trust.

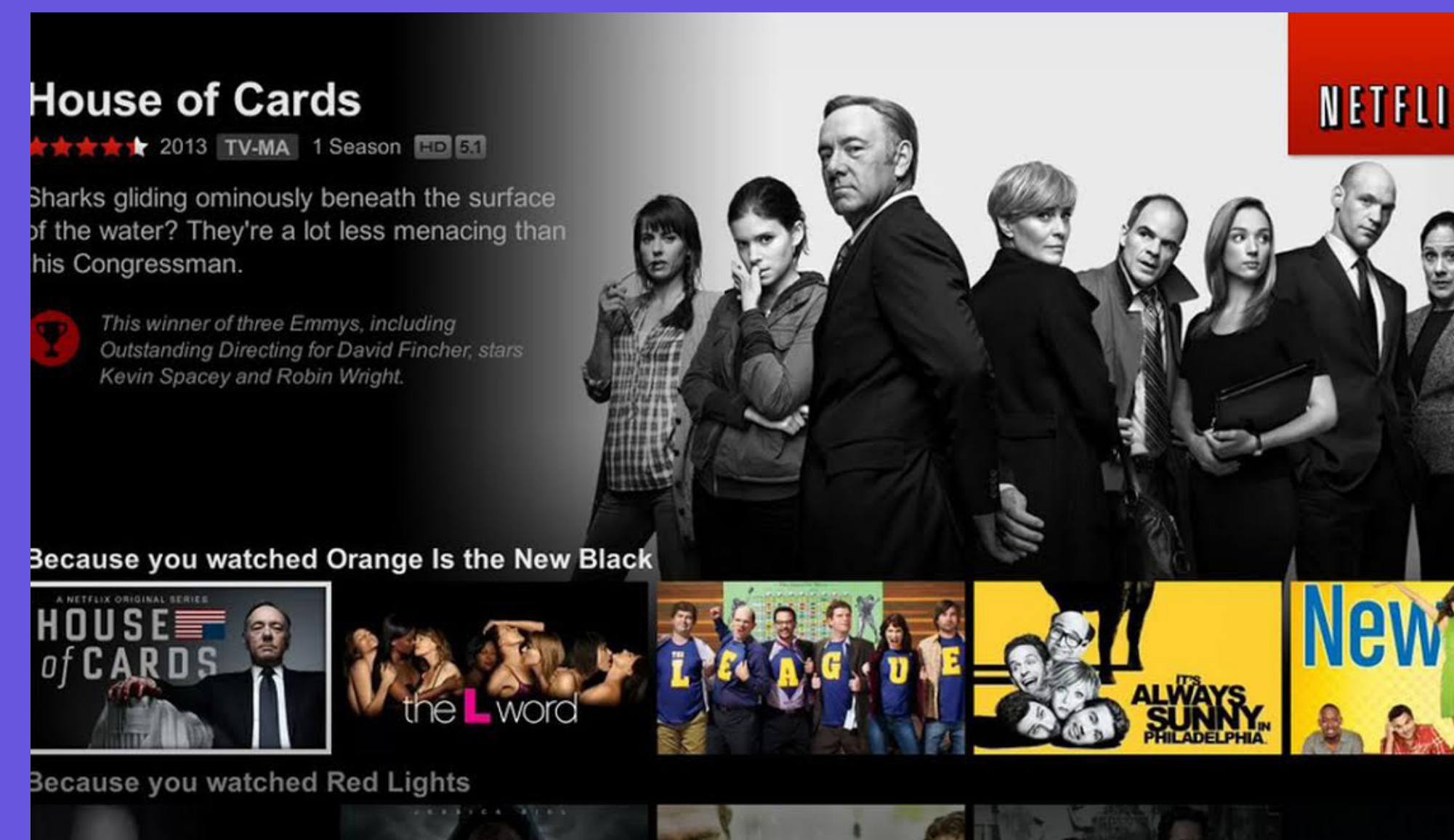
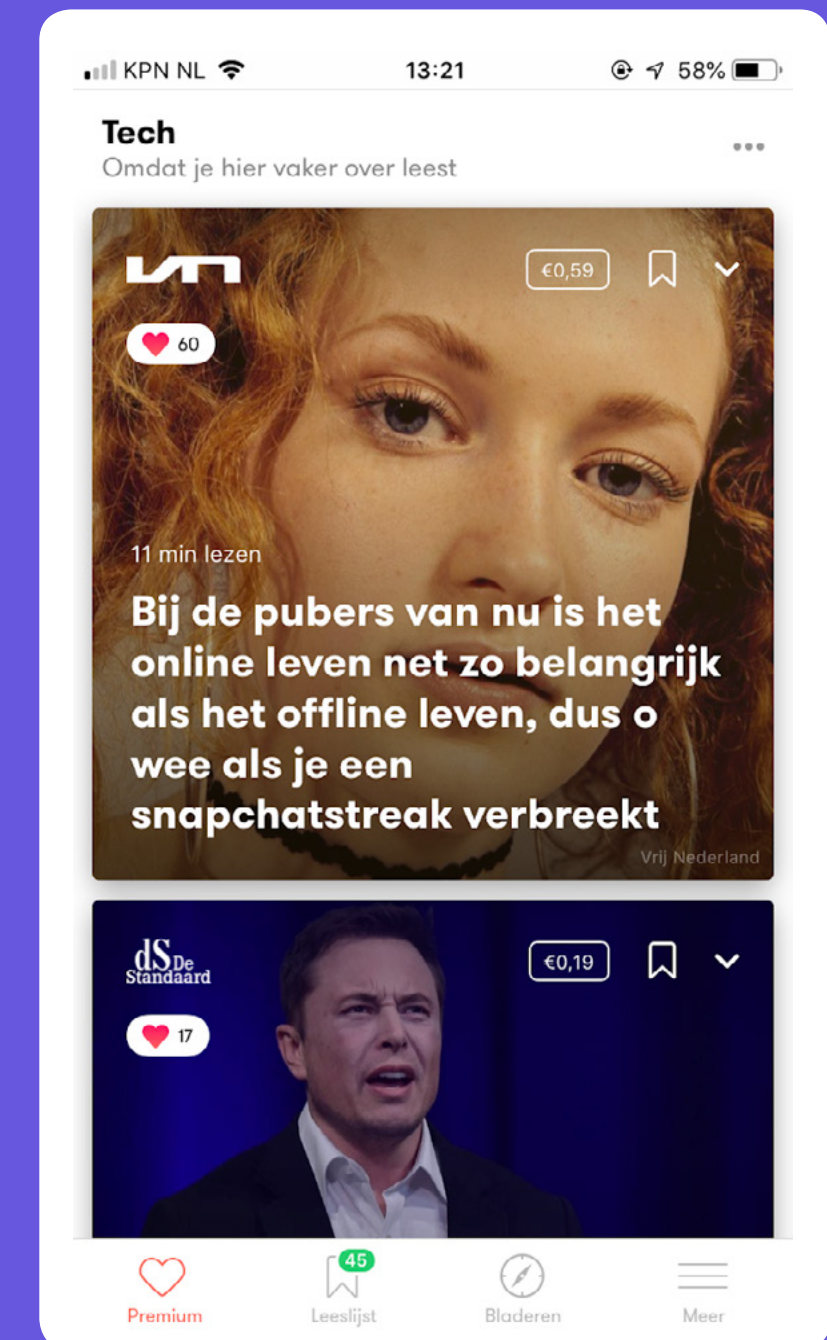
Data is key in the advancement of AI. Data is a true gift and precious to many users. Therefore, it is important that we design for trust by being transparent in what we know about the user and how we're gonna use it. If possible, users should be in control and able to modify their data if needed. Data has been a hot topic lately with news coverage about Cambridge Analytica and the Russian collusion within the US Election, which made people more aware and sometimes even reluctant in regard to data-sharing.

Build trust by creating a healthy dynamic in which transparency and honesty are the cornerstones.

AI IN PRACTICE.

Blendle is very transparent and tells you what they know and why you're getting what content. (example: "TECH - because you read about this often").

Netflix builds transparency by adding reasoning behind the selection of buckets. (example: "Because you watched Orange is the New Black").



The examples above tap into a specific scenario. Looking company-wide, an ethical and clear data policy should be at the foundation of every AI-driven product or service.

4. Humanize experiences.

As our daily interactions with machines are rapidly changing, the value of personality becomes more prominent. Looking at recent findings from Google who studied how people interacted with Google Home, one thing stood out. Users were interacting with it as if it were human. Users said for example “thanks” or “sorry” after a voice-command. This observation shows the potential of personality within the human-machine relationship.

People can relate more to devices if they have a character.

AI IN PRACTICE.

The movies *Her* and *Ex-Machina* both explore this concept and illustrate an interesting scenario of how personality in AI could have an impact. Both are fictional stories but can trigger your imagination.



AI IN PRACTICE.



Google taps into designing for less choice with their 'slices' concept, whereby users get to see a predicted action based on their past behavior or actions. Apple introduces a similar concept with shortcuts in their upcoming iOS 12 update.

5. Design for less choice.

Looking at today's AI-driven experiences, much of the UX is very reactive. As in, products need to be triggered by a voice command, gesture or button in order to activate. Ultimately, AI will proactively trigger users. The current high performing, and overly noisy world leaves very little room for users to be in the moment.

Design for less choice by removing unnecessary decisions.

This creates headspace for users and can even result in the appearance of things we hadn't thought of. Design one step ahead.

FOLLOWING CHAPTERS

This Brain Food series will be released chapter-by-chapter, stretched over several months. In every chapter experts will dive deeper into specific topics related to AI.

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