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Issue 06
June 2018

SCROLLER

The media magazine for kids

Topic

Artificial Intelligence

His name is EZ10
Test driving a self-driving minibus

It's the future!
Talking to little robots at T-Lab

Everyday AI
Where we can already find artificial intelligence at work today

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The new free children's magazine from Teachtoday

Meet Tom and Trixi

Boy, this time Tom and Trixi are taking on a very big topic: artificial intelligence. They encounter computers, robots, household appliances and more that all use lots of data and information in order to perform tasks as independently from us humans as possible. The more data, the better the result. The best result would be if these devices could learn on their own. Sounds rather logical, right? But it's not quite that simple just yet.

TRIXI

Trixi knows her way around media, for sure. But artificial intelligence, algorithms, data management, language assistance and Co. all get her head spinning. Together with her friend Tom, she goes on a journey into the future. They soon realize they don't have to travel that far, as artificial intelligence is already here today.

Tom dreams of a robot friend – someone who stands by his side unconditionally in all moments of life, someone who is patient and always supportive with advice and assistance. But is that really what he needs? Especially since he already has Trixi and SCROLLER ...

Let's go!

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HELLO!

Artificial intelligence! The solution to all the world's problems? It's a super dense topic and one that experts don't always agree on.

Since the 1950s artificial intelligence has been the subject of lots of research. Who hasn't heard of the robots in science fiction movies, who always have all the answers and who are ready with the right thing to say when the human heroines and heroes are comical, angry, helpless or sad?

We humans have long dreamed of such robots, and actual research is at full force to make AI a reality. Some initial results are already here.

Robot aids help in medicine, language assistants are in our phones and cars are driving themselves, almost without any help from us.

SCROLLER has taken a look around to explore where artifical intelligence is already being used today – the infographic might surprise you. Our kid reporters asked further and visited the experts at Deutsche Telekom's T-Lab, to find out what artificial intelligence really is.

Have fun with the new SCROLLER

Annette

Annette Reuter
Project Manager Initiative Teachtoday
Group Corporate Responsibility
Deutsche Telekom AG

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KID REPORTERS ON THE STORY

It's the future!

Life with artificial intelligence

What is artificial intelligence (AI)? Where can you see it in use already? How will it change our lives? The kid reporters, Solveig and Anouk, are after these tough questions. So they are off to the Deutsche Telekom's T-Lab, because this is where Heiko Lehmann, Ronald Fromm and Lisa Anders work every day to develop intelligent machines and computer systems.

Kid reporters: Hello Mr. Lehmann, can we see the future here at T-Lab?

Heiko Lehmann: To a degree. For example, here we imagine how humans will communicate in the future. We are doing research on media that may one day replace the telephone or television. AI plays a very important role in that.

Kid reporters: Also with that little robot there?

Ronald Fromm: This is Pepper. He does have artificial intelligence. It uses speech recognition software and sensors that he uses to recognize people. When he speaks to you, he will look at you and follow you with his head movements.

Kid reporters: What is AI anyway?

H. L.: There are two types of AI: strong and weak. With strong AI, the idea is to build a computer system that is just as smart as a human brain. But weak AI is about making computers really good at handling only specific tasks. AIs today, for instance, play chess so well that no human even has a chance anymore.

Kid reporters: Where is AI being used?

R. F.: In the medical field, for example, x-rays are analyzed all the time. Until now, doctors did the job. But today, AI systems can also do it. They are more precise and can recognize things that a human eye might overlook.

H. L.: In the future, AI will be found in many everyday objects. Language assistants, like in your mobile phones, can already understand speech pretty well. They don't always understand the meaning, like with jokes or if you're being ironic. But language and translation programs will definitely be with us in future uses.

Kid reporters: Translation programs? Does that mean we won't have to learn foreign languages anymore?

H. L.: Actually, we have contemplated that here at T-Lab. One could speak Portuguese on the phone to someone who doesn't understand that language at all. An intelligent program would simply interface between the speakers and translate.

Kinderreporter: Can AI even replace teachers?

Lisa Anders: I don't think so. A computer can explain math formulas. But it doesn't get that every child learns differently and that it would have to explain in different ways until each child understood in their own way..

H. L.: But AI is very good at checking the sounds one makes when learning to play a musical instrument. It can recognize whether one's fingers are in the right place or even explain the right techniques.

But it cannot say how a musical piece should be played or how to properly emphasize certain notes.

Kinderreporter: Can AI be smarter than we humans are?

H. L.: In the case of weak AI, yes, they already are, because they only have to be really good in certain areas. But to mimic humans in all their abilities, feelings and ideas, no AI is capable of doing that. That will remain the case for a long time. We don't even fully understand our own brains yet.

Solveig talks with the little robot Pepper.

Off to the Deutsche Telekom's T-Lab.

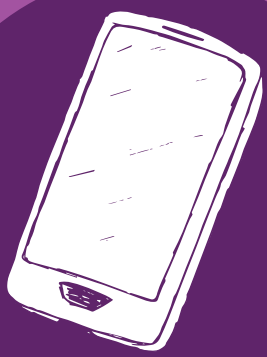
The kid reporters and the T-Lab team.

Lisa shows how you can read information from images with AI.

STATISTICS

The Zuse Z3, built in 1941, was the first functional computer. It still looked like a huge living room cabinet. Today, a computer fits easily in your pocket. Modern mobile phones have a computing power unimaginable for that time. The enormous increase in computer performance is an important prerequisite to the development of AI.

Zuse Z3 could solve only one calculation per second.



A modern mobile phone manages 600 billion operations per second.

Everyday AI?

This device has AI already

It's quite simple really. You feed a lot of information into a computer. That is data it uses to fulfill tasks in the most "human" way possible. The idea is to relieve people from doing work as much as possible. Here are some examples of already common everyday uses.

Speech recognition

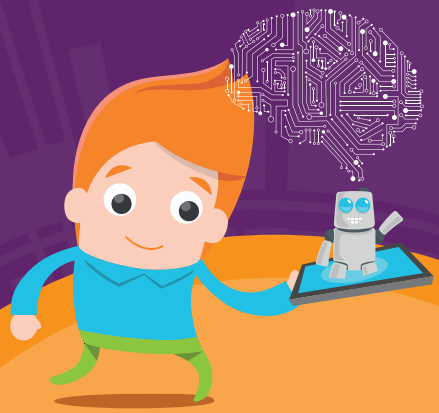
Perhaps you know them already, the little round helpers at home that recognize speech and answer your questions.

Entertainment

A playlist composed on the phone according to your taste and the weather: music streaming service providers put these together especially suited to you from their songs and your music choices. Researchers are working on a set of headphones that recognizes your facial expression and plays appropriate music.

Household

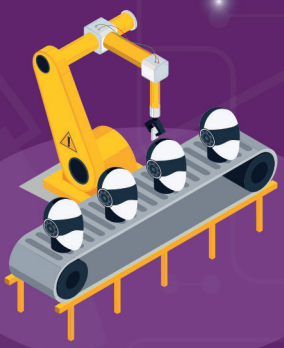
Vacuum cleaner robots navigate your home using sensors. They can detect obstacles and make decisions on whether to climb over them with special climbing parts or simply go around the object.



Neural Networks

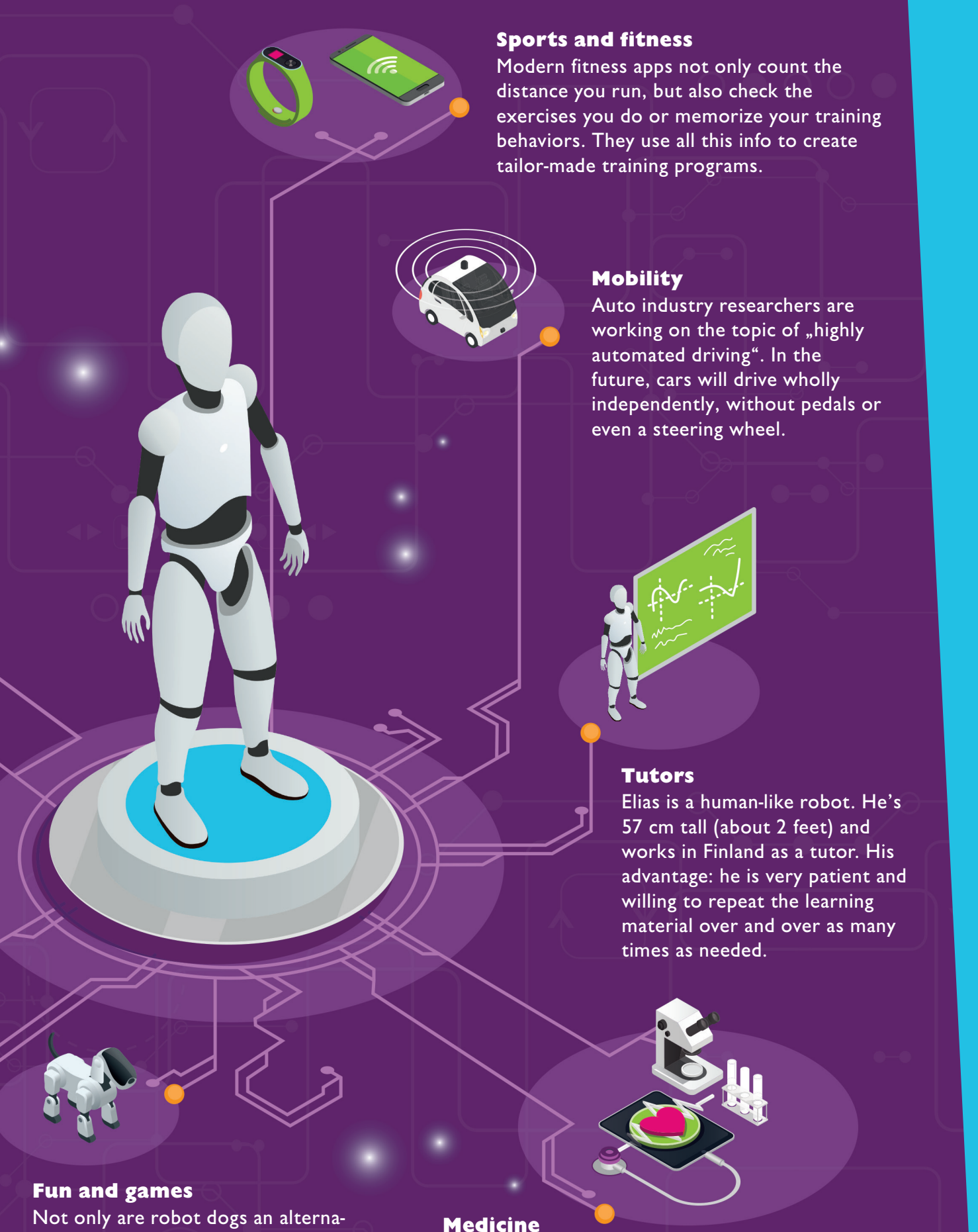
Human or Machine?

The model for AI is, of course, the human brain. Just like in us humans, nerve cells are linked (neural networks) in such a way that they connect information in all kinds of new ways. We call this learning. This allows computers to be able to analyze data and make decisions.



Technology

In technology, AI plays a huge role. Already today, there are cameras that watch over mass production lines and make sure no manufacturing errors occur.



Sports and fitness

Modern fitness apps not only count the distance you run, but also check the exercises you do or memorize your training behaviors. They use all this info to create tailor-made training programs.

Mobility

Auto industry researchers are working on the topic of „highly automated driving“. In the future, cars will drive wholly independently, without pedals or even a steering wheel.

Tutors

Elias is a human-like robot. He’s 57 cm tall (about 2 feet) and works in Finland as a tutor. His advantage: he is very patient and willing to repeat the learning material over and over as many times as needed.

Fun and games

Not only are robot dogs an alternative to a real pet, there are already robot playmates that show “real” feelings and even ask you to play with them when they “get bored”.

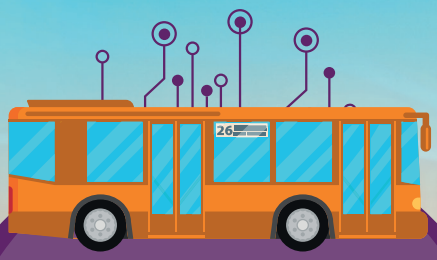
Medicine

There are super computers stationed in certain hospitals that are fed gigantic amounts of diagnostic data. These are able to recognize illnesses very quickly and sometimes with even more precision that a human doctor can.

WELL DONE!

TIPS TO BE TOUGH WITH A GLIMPSE INTO THE FUTURE

Artificial intelligence will take over more and more tasks for us humans, for example driving in traffic, in medicine or in the household. It will change our everyday lives. With our Tips to be Tough, you'll get a glimpse into the future.



1. LOOK OUT

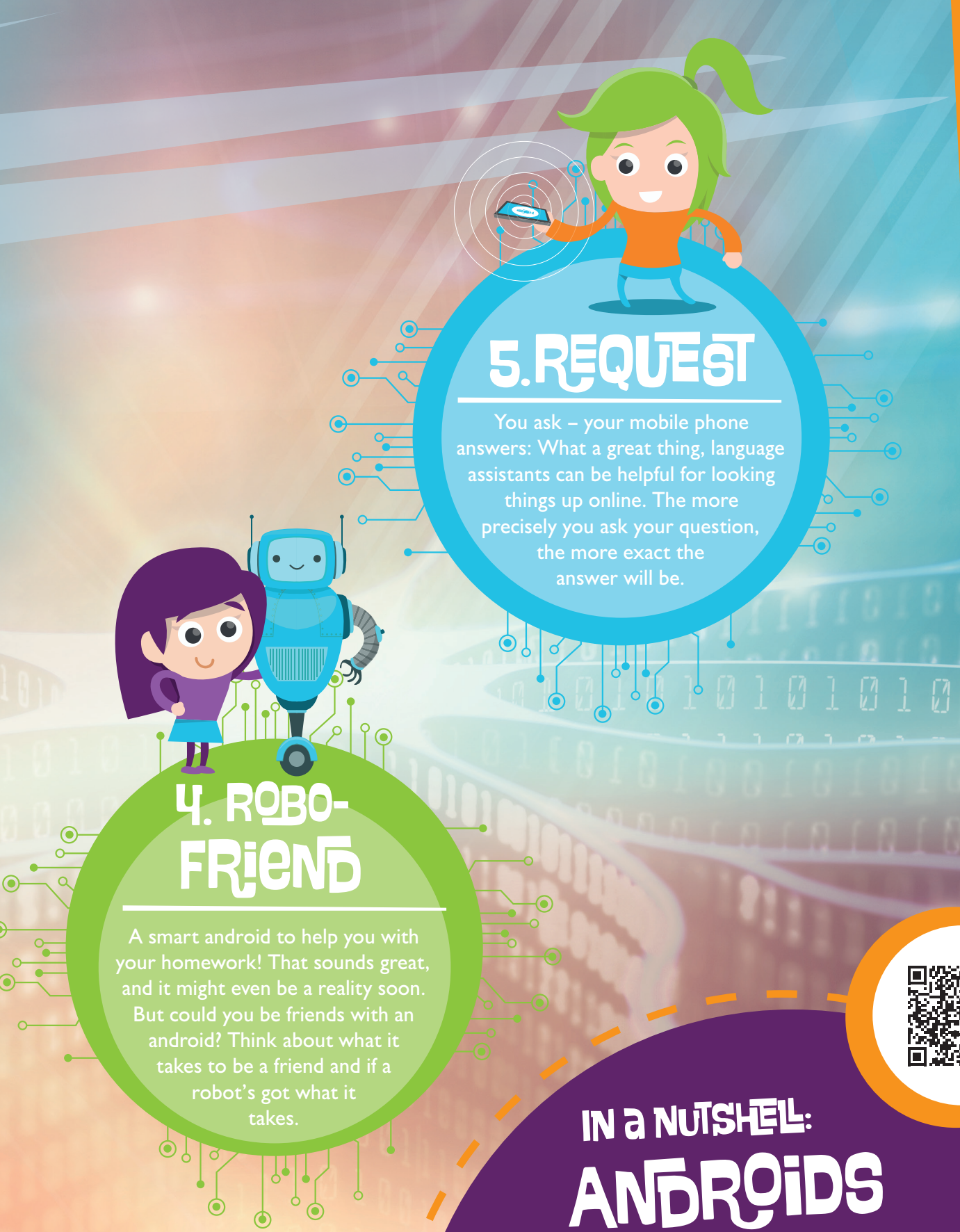
Your school bus might soon be taking you to school without a driver. Next time you're on the bus, check out what the driver has to look out for and think about all the stuff an AI would need to pay attention to in order to get you to school safely.

2. OVERHEARD

Learn about all the things your phone or your language assistant can do. Maybe even eavesdropping on you when you don't want it to? Protect your privacy by simply turning off the features when you're not using them, so as not to be overheard.

3. COLLECTING

Many apps only work really well when they are fed plenty of data about you. Consider very carefully whether you want apps to know stuff about you and what exactly you are disclosing.



5. REQUEST

You ask – your mobile phone answers: What a great thing, language assistants can be helpful for looking things up online. The more precisely you ask your question, the more exact the answer will be.

4. ROBO-FRIEND

A smart android to help you with your homework! That sounds great, and it might even be a reality soon. But could you be friends with an android? Think about what it takes to be a friend and if a robot's got what it takes.

IN A NUTSHELL: ANDROIDS

Androids are programmed machines that are made to resemble humans as closely as possible. They can move independently and do various activities. Androids so far have been unable to feel joy or anger, and they have no will of their own.

* You can find more tough tips on the SCROLLER-Web page: www.scroller.de/en/

THOUGHT FIRST!

HIS NAME IS EZ10

EZ10 is a minibus that can drive by itself. Since 2015, the vehicle has been tested at more than 60 locations worldwide. The bus can carry up to 12 people.

EZ10, 3 years old

Self-driving minibus

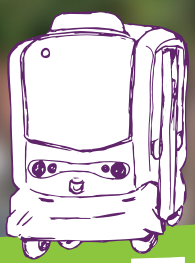
What's new?

Most people who ride with me, have many questions, because I am new to them. I don't have a horn, for example, instead I make a bell sound like a tram. I'm currently being "trained" for road traffic. That means I drive the same route over and over many hours a day and learn how to deal with everyday traffic issues.

How does that work?

I have electronic sensors for eyes. I can measure what happens in my environment with them. They help me to brake quickly when another vehicle drives in front of me or when a pedestrian crosses my path.

While I can drive by myself, I don't decide where I go. I follow a pre-set route, always. I stop at pre-set bus stops. But I can brake automatically, if there's a bend in the road that I can't see around with my sensors. If I were ever to decide for myself what route I take to my destination, that would be called autonomous driving.



WHAT IS AUTONOMOUS DRIVING?

EZ10 drives automatically – but not autonomously! This is an important distinction. Researchers are working on building autonomous or self-driving cars. They are meant, not like the EZ10 to drive on pre-set routes, but rather to be totally independent and drive in traffic like anyone else. The idea behind that: The owner of a car only needs to tell the car where to go and the car will bring him there without the owner lifting a finger (or pressing a pedal).

Heinrich Coenen

Project Manager at the Berlin transportation company (BVG)

Heinrich Coenen of the BVG is working with the Charité to explore the future of road traffic. On the grounds of the Berlin hospital Charité, there are yellow minibuses currently driving around. They are there to test how driverless cars could improve road traffic.

And in the future?

EZ10 is supposed to drive entirely without human help. It will automatically make the stops and follow its fixed route. EZ10 is an electric vehicle, which doesn't use gas. To drive ten hours, it has to charge its batteries for five hours.

The vehicle drives by using a smart computer program to safely get from one place to another. For this, we have to do many, many driving tests with EZ10. That's because EZ10 must never make a mistake in real road traffic.

Especially in the city center, traffic is very confusing, because there are many pedestrians, cyclists, buses or trams on the road. There's a lot to pay attention to. This will be challenging for driverless cars. It is therefore much more likely that there will be extra lanes or areas, where such vehicles are used.

CHECK OUT OUR WEBSITE:

WWW.SCROLLER.DE/EN/

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How good are you at dealing with media? Do you think you know it all? Try our Media Competency Test.

TIPS TO BE TOUGH

With our tough tips, you'll be off to a good start in the digital world. Discover the tips.

OUT AND ABOUT

Our kid reporters are out and about, asking many important questions; and they're getting exciting answers. Have a look!

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