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Issue
03
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SCROLLER

The media magazine for kids

Topic

Data, tracks, security

Cookies everywhere?!

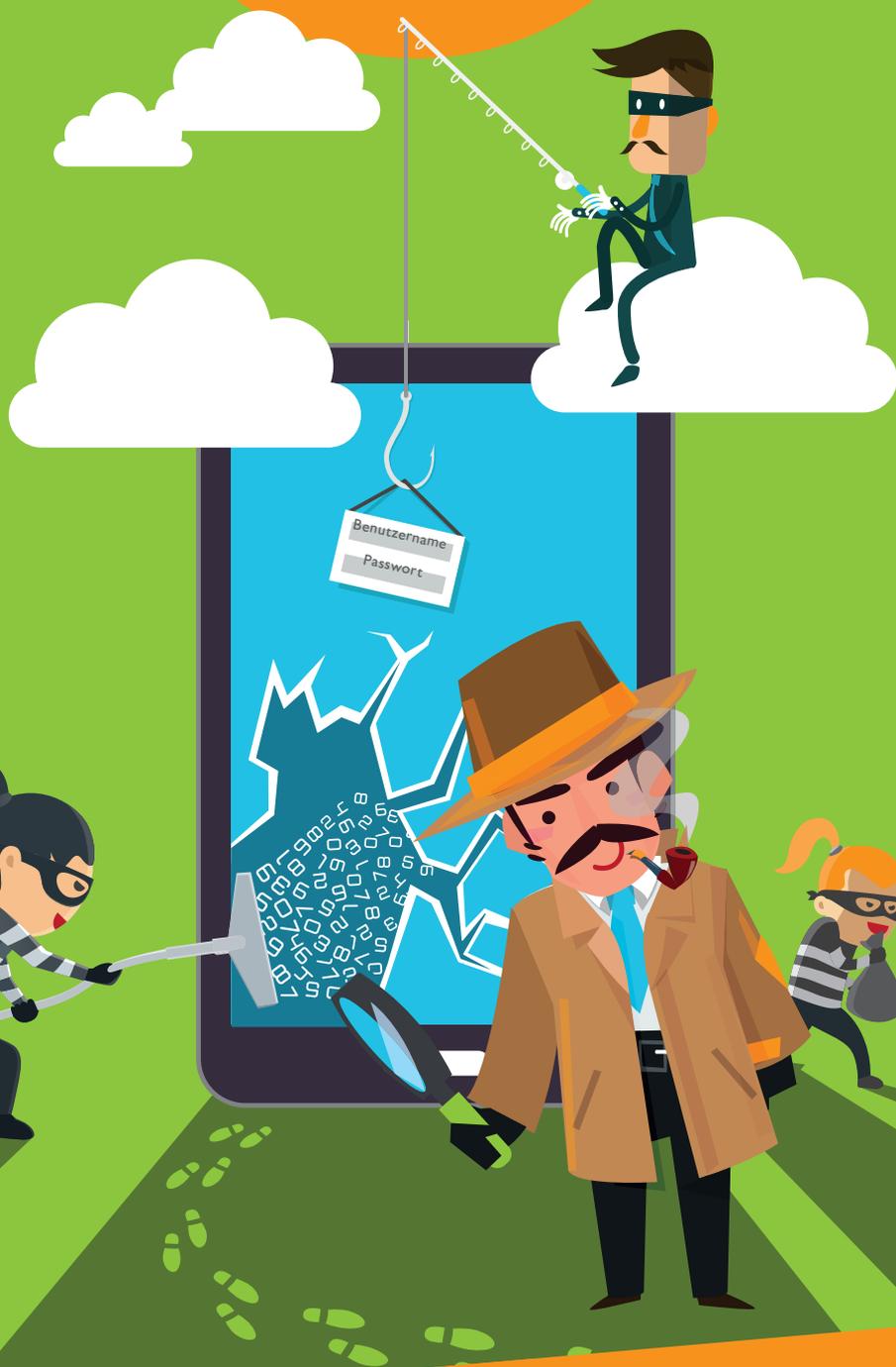
How and why you leave digital traces while surfing online

The data express

How to get data from A to B – to the United States and back

Data collector

Prof. Dr. Hornberger explains how data collection can support research



Grab your **SCROLLER**
The new free children's magazine from Teachtoday

An initiative by 

Meet

Tom and Trixi

Phew, this time Tom and Trixi have taken on quite a task: they want to discover what data security is all about and why it is so important. Like detectives, they go on a mission to trace what they leave behind everytime they go online. As always, they guide you through SCROLLER and are ready to help whenever it gets tricky.



TRIXI

Trixi is clever, always online and a keen discoverer of new websites. Whether shopping, chatting or researching – Trixi is usually the first to experience new things online. Her faithful dog SCROLLER sticks by her side and never lets her out of sight.

TOM

Tom is more of a tinkerer. He is enthusiastic about apps and what they can do. Curious like he is, he wants to know everything about leaving his mark on the Internet and how to secure his data online.

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HELLO!

Have you ever heard of cookies that you cannot eat but that are collecting a lot of information about your behavior? Tom and Trixi show you that these little data trackers are pretty much always by your side when you are surfing the Internet, chatting, shopping or watching the latest videos.

This brings us to this issue's topic: data, and especially data security: we are going to take you on a trip through the Internet and show you why your data are so valuable. You will learn why you always have to be careful when it comes to handling your personal data.

Data travel fast; in fact, way faster than the fastest bullet train! Each click or search engine request sets them in motion. SCROLLER followed their traces, so buckle up for a speedy ride on the data train!

Prof. Dr. Hornberger will show you when and how data can do a lot of good. He invented the online game Sea Hero Quest, which is not only fun but also a valuable data source for research in fighting the disease dementia.

We wish you lots of fun reading and discovering!

Annette Reuter

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

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Cookies everywhere?

Tracking down data cookies

Trixi sits at the computer doing her homework. Tom comes and wants to look something up on the computer. After a while he asks Trixi if she already bought the tennis shoes she wants. Trixi is amazed! How did he know? Tom explains all he had to do was check her cookies.

“Cookies? I don’t get it! What are you talking about?” asks Trixi with big question marks in her eyes. “I’m talking about cookies! Don’t you know what cookies are?” asks Tom irritated.

„Anytime you visit a website online, the server — that’s a big computer where the websites are — saves a little file on your computer in your browser program. Most of the time you don’t even notice. It happens automatically whenever you click on a website. That’s how a cookie gets saved on your computer.”

“And what did you just do with the cookies?” asks Trixi surprised. “They’re not real cookies, just data. Every time you go to an Internet page that you’ve already

visited, the server recognizes the cookie and that way it knows that you’ve already been there. That way the server also knows what tennis shoes you’ve been looking at, in other words the ones you might buy.”

“Oh,” says Trixi amazed, “and how do you know which ones I looked at?”

„There’s advertising for those tennis shoes popping up on our computer now. Cookies are very important to online stores. They use all those little data crumbs to recognize who you are when you visit and show you the things you looked at before or similar stuff that you might want. Of course, what they really want is that you buy something from them.

And I can see the advertisements on the computer as well! But do you want a tough tip? The cookies can be erased whenever you want. Also, you can set up your browser to tell it how to deal with cookies. Sometimes cookies can be really useful,” Tom explains. “They help you to find your tennis shoes really fast the next day,” Trixi beams.

“But you should be careful all the same, because you don’t know who else is also looking at your cookies and evaluating them, and you sure don’t know what they use that information for,” stresses Tom.



TOM'S TIP:

Cookies are not harmful. But they save information on your computer and that data can be read by data thieves. You can always erase the cookies in your browser. Or you can set your browser to not accept cookies from certain sites or altogether.

... makes it possible for a website to recognize you and when you have visited in the past.



... sometimes saves data for an unspecified amount of time.

... is saved by your browser and can be erased from it too.



A COOKIE ...



... can be saved in your browser for various amounts of time.



... saves information about websites that you visit.



... is not used for sending spam.



Data and Privacy Protection

You also make a lot of data: addresses, birthday, hobbies, telephone numbers or private photos. Because much of this data is personal and says something about your identity, it's called identity data. That's why you should be careful what you reveal. Always decide for yourself and pay attention to what happens with your data online. That's very important: When installing apps, you will often be asked to share data that is not needed for the app's functions. Or you leave data crumbs via cookies online and those tracks can fall into the wrong hands.



The data express

Faster than a bullet train

Surely you've taken the train before, maybe even a super fast bullet train. Maybe you've seen people on the train using laptops or you've even sent text messages or photos with your phone during the trip. We'll show you how the data you send from the train gets to the right address.

Search machine query

How fast does a bullet train travel? Checking the answer to that question by quickly Googling it only works if your phone has Internet. By the time a search query makes it to Google's headquarters in the USA (Mountain View, California), it has passed through a lot of stations and travelled a long distance. About 30,000 km, almost as far as making one whole trip around the equator.



Mountain View, USA

Cabot, USA

Frankfurt am Main

Wedel

Hamburg

Internet hub DE-CIX

Many thousands of networks all around the world build up the Internet together. They exchange data via Internet nodes. The DE-CIX node is the world's biggest node. It's an intersection where a huge amount of data travels through: 5 terabytes per second. That's the same amount of storage capacity as 300,000 mobile phones have together.

Tracking the trip

If you buy a ticket with an app, you can follow your trip on your phone. The GPS receiver in your phone uses radio waves to contact several satellites that tell it what time it is and where you are. That's how your phone calculates the route.



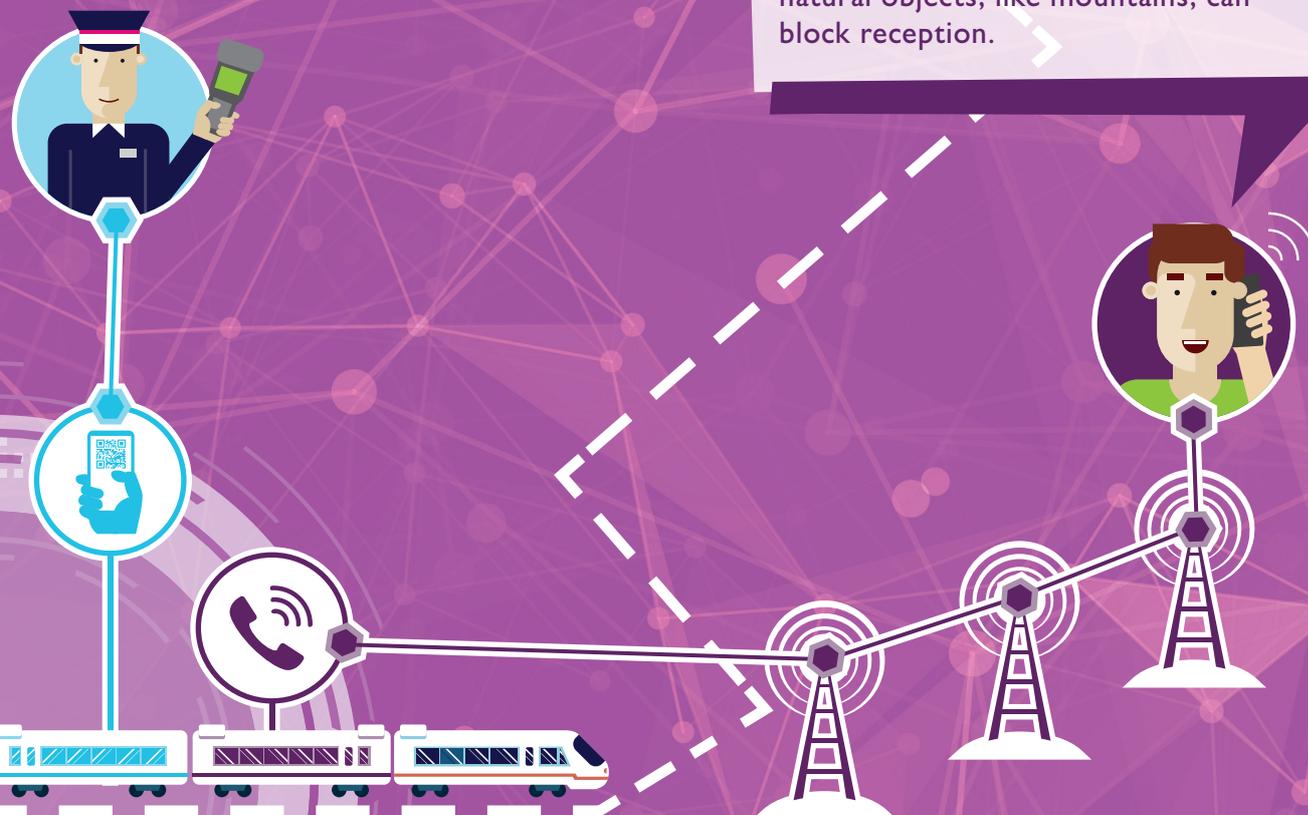
Ticket control

Tickets today don't need to be printed on paper anymore. You can instead buy tickets online with an app and save them on your phone. When a ticket checker comes, he can simply scan the ticket on your phone and get all of the relevant information: departure and destination stations, travel date, price, number of travelers, and so on.



Making calls with a mobile phone

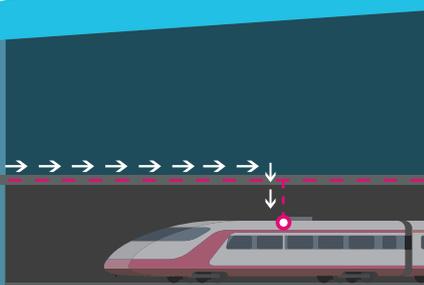
Ever since mobile phones have been around, making calls on a moving train has become totally normal. Cell towers along the railway pass the phone signals on to their destination. Sometimes natural objects, like mountains, can block reception.



WHAT HAPPENS IN A TUNNEL?

How signals make it into and through the tunnel

The signal from the mobile network is sent right to an antenna at the tunnel entrance.



Then that signal is transmitted right down the tunnel and through a slot cable into the train.

WE'VE
DONE!

TOUGH TIPS FOR YOUR DATA



Download a new app or register on a social network: and you've already left a digital trace of yourself. Often without realizing it. The most important thing is that you realize how valuable your private information is and how you can protect it. Then you'll be on the right track to becoming a data expert.

1. WELL PROTECTED!

Only use strong passwords. It's best if you have different passwords and change them regularly. So you can better protect your data.

2. LESS IS MORE!

Address, date of birth or hobbies: Be very careful about disclosing this personal information.

3. DON'T TOUCH!

If you receive messages with attachments and do not know the sender, then just delete them. Attachments in such messages often hide viruses or programs that can cause a lot of damage.

JACKPOT



4. NO WIN!

If you see a sweepstake which you can supposedly win just by filling out a form with personal data: Beware! You better talk to your family about it first.



SENDEN

5.

BE FAIR!

Is your personal data important to you? It is important to others too! Be fair and consider exactly what information and photos of others you share or post.

6. KEEP TRACK

From time to time make sure to check on what you can find out about yourself on the Internet. Then you'll always know what others can learn about you.

A STRONG PASSWORD

A strong password consists of at least 8 characters, upper- and lowercase letters, symbols and digits.

The best thing is to use a memory help with a sentence, for example: "Tomorrow at 7 it's time for training!"

That makes the password: Ta7iTfT!

* You'll find more tips to be tough online on our SCROLLER website: www.scroller.de/en/

THOUGHT
FIRST!



COLLECTING DATA FOR a GOOD CAUSE



Many apps are real data suckers. They collect personal data, even when it's not necessary for the app's functionality.

But sometimes, you can do good things with data too. Like in medicine for example: Together with the Deutsche Telekom, a team of scientists and game developers have developed the game app "Sea Hero Quest", designed for people aged 18 to 100.

By playing this app, people can help with research to fight a disease. It's easy: Data about users' game play is collected.

Of course, all the data is anonymous and German privacy laws are respected.

What's important to the researchers is most of all the data about how players navigate the adventurous game levels and explore the digital space.

The scientists and researchers use the data for dementia research. Maybe you've already heard about this disease that mostly affects older people. People with dementia become more and more forgetful, which makes it harder for them to live their lives independently. They need help from others.

So far science knows little about how dementia comes about. Usually, the disease only gets noticed at its later stages.

The scientists and researchers hope to find ways to detect dementia early on in the future by using the data from the way people solve the game in the app.

This way, better treatments will become available.

We talked to professor Michael Hornberger, who told us more about the game and more about dementia itself.



WHAT IS DEMENTIA?

Dementia is a disease that changes the way people remember and their spatial orientation. It can cause them to forget their way home. It is difficult for people with dementia to remember or to learn new things.



* Screenshots Sea Hero Quest: Deutsche Telekom

PROFESSOR MICHAEL HORNBERGER



Profession: Professor for dementia research

Workplace: University of East Anglia, England

Task:

Prof. Dr. Hornberger researches how to identify and treat dementia. That's what he'll be using the results of the game play data to gain insights for future research.



PLAYING HELPS

People with dementia often get lost. With “Sea Hero Quest,” we want to find out how healthy people move about in space. It’s a game with the challenge of moving around a lot and it’s something lots of people are playing. That’s why it’s perfect for collecting this important information.

THINKING FIRST:

People with dementia are often not very good at spatial orientation. That’s why researchers are trying to find out how people spatially navigate.

COLLECTING DATA

In science, we use data only to advance our knowledge and maybe we can also help people and patients by using that data. We don’t want to know who, where, what or for how long people play. We only care about learning how people navigate and orient themselves in space.

THINKING FIRST:

All of the data that gets collected in “Sea Hero Quest” is anonymous. When the project is finished, the data will be openly available to other researchers.



GOOD CAUSE

Data can do a lot of good, as long as data and privacy protection are observed. The scientists have used the game to quickly collect huge amounts of data, which goes into dementia research. It gets used for a good cause. “Sea Hero Quest” has so far been played by over two million people!

THINKING FIRST:

Data can help medicine to develop methods for diagnosing dementia early on in the future. That way, people with dementia can get treatment earlier, which is more effective.

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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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