

DEAR READER,


There is one question that I am asked time and again: How can you protect yourself from attacks on the Internet? I can, of course, only recommend technical protection mechanisms such as virus scanners, firewalls and password managers. But in my view, there is something else that is just as important: We need society to be more aware of the challenges of the digital world and the importance of secure and trustworthy technologies.

At *CISPA*, we begin raising awareness about data privacy and web security already among schoolchildren. We offer, for example, workshops and information events in our *CISPA Cysec Lab*, where IT topics are approached in a playful manner. We also participate in events such as Girls' and Boys' Day. Our Science Outreach team provides training for parents and teachers and initiates citizen-science-projects to get the public involved in our research.

On our website and social media channels, everybody can see what our scientists are working on all day every day, which research questions drive their work and what groundbreaking results they achieve through their passionate commitment. It is this excellent research that enables us to attract the best young talent from all over the world and to train the next

generation of IT security experts in the Saarland. In this issue of our Zine, read more about how *CISPA* brings its research to the world.

Enjoy reading!



Prof. Dr. Dr. h. c. Michael Backes

FACTS ABOUT CISPA

Information vom: 2023/05

CISPA
Cysec Lab

For both adults and children, the *CISPA Cysec Lab* offers workshops on cryptography, artificial intelligence and web security. Topics are approached in a playful manner.



10
different
workshops

In the *CISPA Cysec Lab*, children learn about the programming language Python using the *Lego®* Learning System.



24,747
Lego® pieces

are used on
a regular basis

in the
Cysec Lab



1.7 million
visits to the
challenge platform

The website <https://challenge.saarland> is where the *CISPA Cysec Lab* offers online challenges, learning materials as well as quizzes on IT security.

IT-SECURITY KNOW-HOW FOR EVERYONE

“Science Outreach aims at making areas of academic research more accessible and fostering an interest in research topics.” This is how Andrea Ruffing, Head of Science Outreach at *CISPA*, explains the task of her team. An important pillar of Science Outreach is the *CISPA Cysec Lab*, where schoolchildren, teachers, students and the public can explore cybersecurity topics. In a playful manner, children from the age of eight are introduced to cryptography and machine learning and invited to explore these topics on their own. The opening ceremony for the *laboratory* at the Beckerturm in St. Ingbert was held in September 2022. However, Ruffing’s team have been conducting online workshops since late 2020.

“We also take our program into schools and participate in science festivals and trade fairs. Last year, for example, we took part in the *Explore Science experience days*. Our demos, such as the Password Cracker, the Escape Room and our crypto puzzles went down well with both younger and older audiences,” says Ruffing. Another visit to Explore Science is in her diary for 2023. In the *CISPA Cysec Lab*

itself, participants first learn about a topic and then try out their newly acquired knowledge in small groups – all in one day.

While the focus for children is on playing and experimenting, parents primarily want their children to learn about innovative technologies at an early age. “This quickly leads to questions concerning degree programs and career orientation,” explains Ruffing, who has answers at the ready. In cooperation with *CISPA*, *Saarland University* offers four degree programs in cybersecurity, which Ruffing’s team are promoting on a regular basis. “We invite former students to talk about their experiences. We also approach prospective students, offering them the opportunity to get a taste of IT topics and to learn about the transfer of knowledge to society.”

To young researchers, the Science Outreach team appeals with events such as the *Summer School*. At this event, *CISPA* researchers offer a glimpse of their work, hosting workshops and giving presentations. The *Summer School* also gives young researchers an opportunity to network with colleagues and to exchange ideas about their work.

But Ruffing also wants to reach out to those who do not see themselves as having a (near or distant) future in cybersecurity. In citizen events such as the *Open Campus Day*, the *CISPA Roadshow* or the *Summer of Cybersecurity*, her team and CISPA researchers provide IT security knowledge for everyone – no prior knowledge necessary. Even everyday questions, concerning smartphone security for example, are addressed in this context.

In citizen science projects, the public can make their very own research contributions by documenting the web security incidents they have experienced and sharing them with Ruffing's team. "In doing so, people are actively helping to advance the scientific knowledge process. This data is very interesting for us and the respective research group, while the public can take a glimpse behind the scenes and get a better understanding of how science works."

Andrea Ruffing, Head of Science Outreach, ensures CISPA-research finds its way into society.

“YOU HAVE TO KEEP YOUR ULTIMATE GOAL IN MIND”

Explaining his complex research in just one sentence, comprehensible to everyone, is a challenge that CISPA-Faculty Professor Dr Andreas Zeller is always happy to take on. Science communication is a hobbyhorse trotting along his great passion and profession: making software better and more secure. In the interview, Zeller tells us why comprehensibility matters to him as a researcher.

Not only are you a very prolific scientist, you are also a very active communicator. You use Twitter, run your own blog, and as a professor at Saarland University, you reach hundreds of Computer Science students each semester.

Yes, that's my hobbyhorse. Looking for ways to achieve the broadest and greatest possible impact matters to me. With every new research topic I turn to, I immediately start to think about ways of presenting the work I've done in as concise a form as possible.

Given the complexity of your research, I would imagine that it can be very difficult at times to stay focused on your main goals and the actual problems that need to be solved.

That's right. You have to keep your ultimate goal in mind. At the end of the day, you don't want to be sitting in some niche, making your progress there, and then having to provide a whole lot of context every single time you're asked to explain what you're doing. That could be a long, long story. Instead, I try to do things

that are comprehensible independent of specific contexts. This also means that I can maximize the impact of my research.

Does this work for every research topic?

No, it doesn't always work. But my scientific training, my scientific approach, is to always try to find the easiest access. That also means that you have to identify what is essential. I want to be able to express matters in a few words and, let's say, in a headline-like manner.

Do you think that sometimes good people with great ideas fail just because they can't communicate them well?

By the dozen. For many researchers, it is hard to simplify their work so much. Often, the research goal sounds simple, but achieving it is very complicated. In this case, of course, it is somehow offensive to researchers to break everything down to the minimum. But honestly, if only a part of the people on the juries for prizes and grants can understand what your research is about and if it's barely possible for them to talk about it in a few sentences, then the applicants stand little chance.

I would like to talk about two examples of successful science communication: Your "Fuzzing Book" and its successor "Debugging Book". How did you come

up with the idea of presenting your knowledge in this fashion? That looks like a lot of work.

I'm killing several birds with one stone. First and foremost, these books are learning materials, they are interactive, digital textbooks. I really wanted to make the effort to get them right. Also, they were created in times of Covid, so it was important that they could be accessed remotely. Then I recorded videos to go with them so that everything came together in one place. I believe that multimedia books like these are the future of teaching. They are practical, available online and always up to date if they are properly maintained.

The books are available to everybody, not only to students. Why?

They serve as an advertisement for our research topics. I keep adding new chapters and thus I also make sure that our research is accessible. And I make a name for myself as a lecturer. The books have actually begun attracting students to *Saarland University* who have seen my tutorials online and like them.

Andreas Zeller was interviewed by Annabelle Theobald. The entire interview is available here: <https://cispa.de/en/zeller>

MORE GOOD NEWS

In November 2022, an evaluation committee of international top researchers visited *CISPA*. In numerous presentations and poster sessions, *CISPA* researchers provided our guests with insights into their groundbreaking research. Thank you to the evaluation committee for visiting *CISPA* and to everybody involved for the great event.

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Ebelhäuser

Prof. Dr Mario Fritz
© Laura Janke

In early October 2022, we celebrated the opening of the AI Center of Excellence *ELSA - European Lighthouse on Secure and Safe AI* in Barcelona! 26 partners from research and industry joined their forces to address the burning issues in artificial intelligence (AI) and machine learning. Together, they want to turn Europe into a lighthouse of trustworthy AI. Funded by the European Union, the project is coordinated by *CISPA*-Faculty Professor Dr Mario Fritz.

Congratulations to *CISPA*-Faculty Dr. Michael Schwarz, who has won his second *Busy Beaver Award*. This time, he was honored for his lecture *Foundations of Cybersecurity II* which he taught in the summer term of 2022. The Computer Science Students' Council at Saarland University presents the award to lecturers who have shown a special commitment to teaching. "I am very happy about the *Busy Beaver Award* because it comes directly from the students. It shows that they appreciate the way I teach."

Dr Michael Schwarz
© Tobias Ebelhäuser

Prof. Bernd Finkbeiner (right)
and Evert Dudok © Laura Jahke

On November 30, 2022, a large crowd gathered for the *Airbus CISPA Day* in the auditorium of *Saarland University*, when both *Airbus* and *CISPA* employees provided information about their cooperation, which had begun only a few months earlier. With exhibits and presentations, the partners gave insights into their joint project as well as the planned *Airbus-CISPA Digital Innovation Hub*. This competence center for cybersecurity and trustworthy AI will be built on the *CISPA Innovation Campus* in St. Ingbert, creating numerous jobs in the coming years.

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CISPA



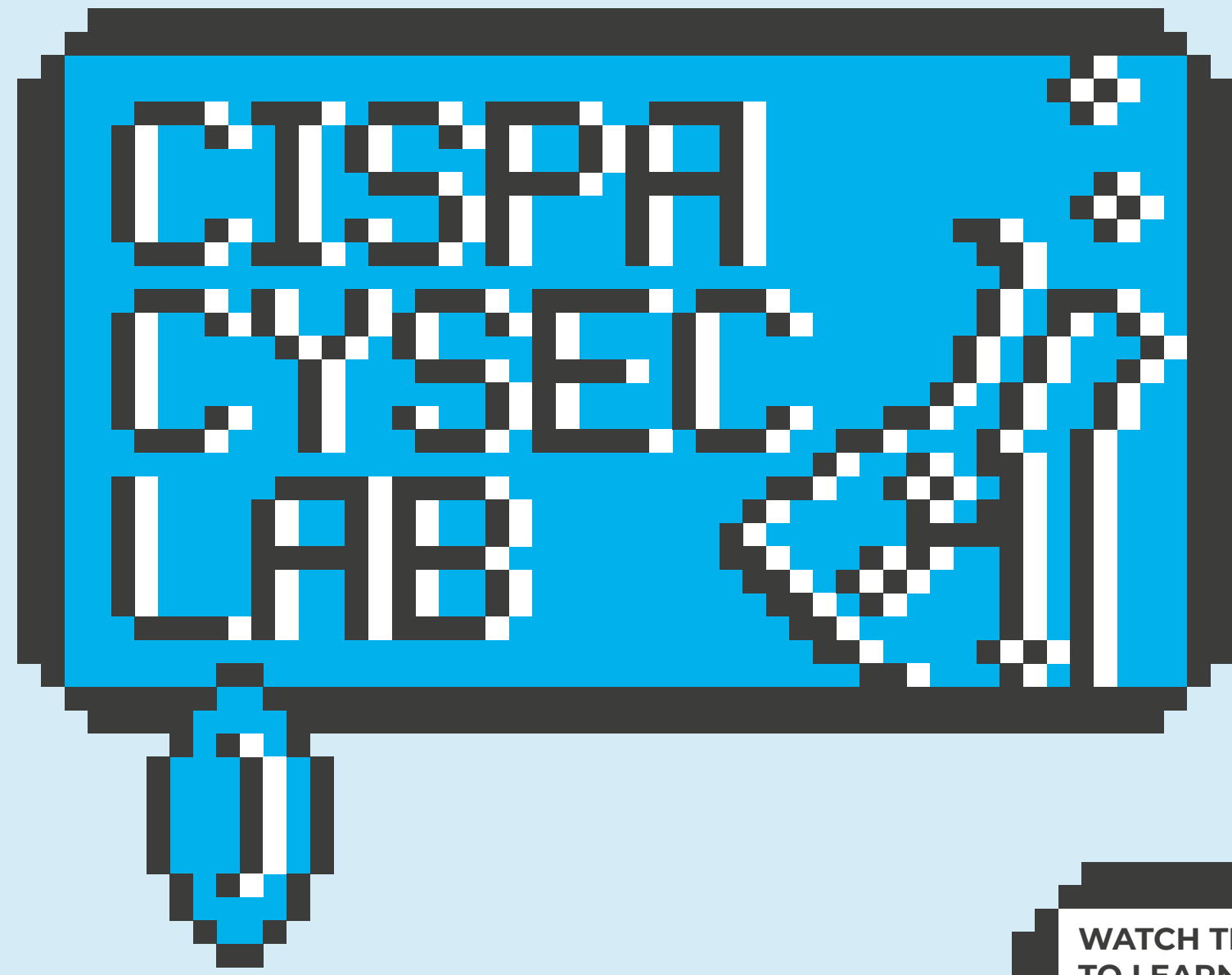
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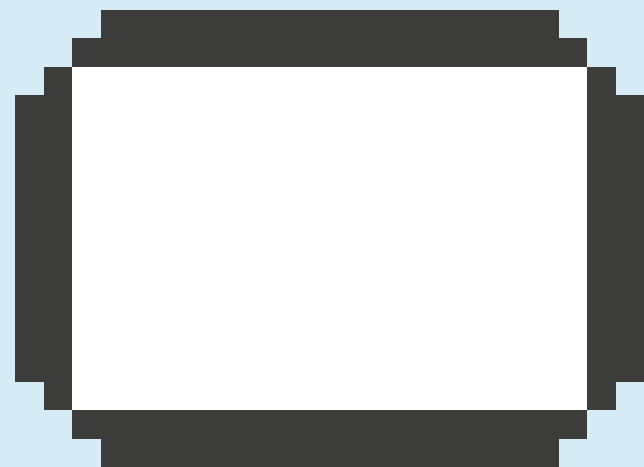
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English Edition



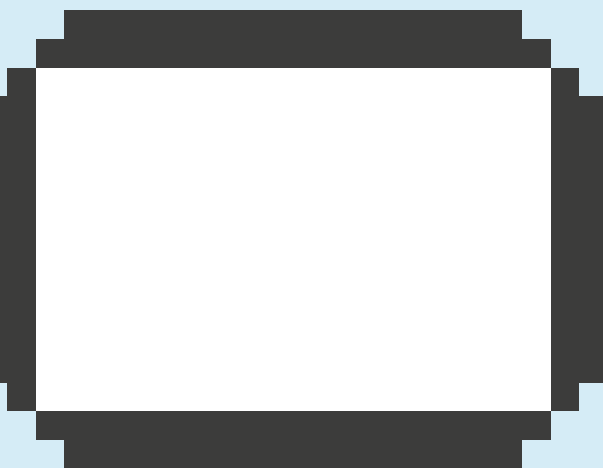
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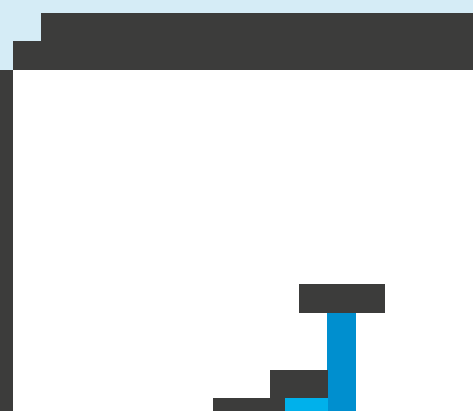
CAN YOU DO OUR METADATA PUZZLE IN ONLY TWO MINUTES?



WATCH THIS VIDEO TO LEARN ABOUT THE CISPA CYSEC LAB. THE ESCAPE ROOM IS JUST ONE OF MANY HIGHLIGHTS.



ESCAPEROOM



INTERACTIVE EXHIBITS



CAN YOU TRUST YOUR EYES?



SCAN THE CODE AND FIND OUT WITH OUR REAL-OR-FAKE QUIZ.



CHECK OUT OUR CHALLENGES ON CYBERSECURITY TOPICS SUCH AS CRYPTOGRAPHY AND WEB SECURITY.

