Fraunhofer

RESEARCH NEWS

Science Year 2018: Cybersecurity Awareness

Beating trojans and viruses at the foosball table

The topic of cybersecurity is complex and difficult to communicate to business and society. Fraunhofer is researching new defense technologies against hacker attacks. The gained knowledge is passed on to specialists and managers at the Cybersecurity Training Lab. With the virtual Cyberkicker, the scientists are now also addressing the general public: the Cyberkicker provides the opportunity for the complex topic of IT security to be presented in a simple, entertaining way which is easy to understand and comprehend even for non-specialists. Visitors to the MS Wissenschaft exhibition ship can try it themselves from May 15th.

According to a survey by the German Federal Office for Information Security, 70 percent of German companies and institutions were victims of cyber and hacker attacks in 2016 and 2017. The estimated number of unreported cases is likely to be higher, since attacks often go unnoticed. The loss of confidence is hampering the rapid spread of digitization and Industrie 4.0. Despite these figures, awareness of such threats among the population is low, and well-trained professionals are rare. "The need for further education about cybersecurity is not yet recognized in companies, or often only when it's too late," says Theresia Gierull from the Fraunhofer Academy. "The more digital everyday work becomes, though, the easier it is for hackers to attack or for computer viruses to paralyze entire infrastructures. In order to be fit for the working world of the future, everyone should be well-informed about IT security."

Working worlds of the future aboard the MS Wissenschaft

The further education platform of the Fraunhofer-Gesellschaft wants to increase the awareness of the topic with the interactive infotainment game Cyberkicker and, thereby, reach wider sections of the population. On the occasion of the Science Year 2018 "Working Worlds of the Future", the virtual foosball table can be seen on the MS Wissenschaft exhibition ship, which is on the run from May 15th to October 9th along rivers and canals in Germany.

With the Cyberkicker, both players look at a display instead of a playing field; instead of moving figures made of wood or plastic, the players use the handles to move digitally represented malicious and defensive software. The game is not played with a white plastic ball as usual. Instead, the counterparties are fighting for a computer file. This can be infected by the attacker with malware – trojans, viruses or spam – and

fended off by the defender through anti-virus software and spam filters. The player who uses a skillful passing game and tactics to get the most infected or clean files into the computer system after two minutes wins. The principle of attack and defense is also used in the real scenarios of the Cybersecurity Training Lab in order to train business experts in practice through the use of simulations.

Playfully sensitize to a complex topic

"We convey the important issue of cyber security in a playful and entertaining way. After the game, non-specialists also understand the basic principles of cyber attacks and their defenses, and are sensitized to the importance of expertise in this area," says Gierull. It is possible to slip into different roles and also to take on the perspective of the hacker. Due to its almost infinite number of possibilities – no game is exactly like the other – playing with the Cyberkicker simplifies the complex situation of hacker attacks. "The Cyberkicker presents the importance of IT security in a way that is close to real life, personally relevant and easy to understand. The knowledge that the players gain can be applied at home, but they can also bring it to their company and promote the topic there. That's imperative if you look at the billions of dollars of damage that hackers are causing," says Gierull.

Fraunhofer Academy

The further education platform of the Fraunhofer-Gesellschaft offers study courses, certificate courses and seminars to specialists and executives based on the research activities of the Fraunhofer Institutes.

https://www.academy.fraunhofer.de/en.html

Cybersecurity Training Lab

Together with universities of applied sciences, a total of nine Fraunhofer Institutes with different IT security competencies are introducing the latest findings from research into a modular, extra-occupational training concept. Specialists and executives from industry and public administration receive a compact qualification in high-quality laboratories with up-to-date IT infrastructure.

MS Wissenschaft

The journey of the MS Wissenschaft in 2018 will take four and a half months. The exhibition ship will be underway in Germany from May 15th to October 9th. The start of the trip is on May 15th at the Schiffbauerdamm in Berlin-Mitte. The Cyberkicker is one of the exhibits displayed there which center around the subject of working worlds of the future.

Science Year 2018 – Working worlds of the future

A robot for a colleague, a workplace outdoors, new working time models – together with researchers and citizens, the Science Year of the German Federal Ministry of Education and Research (BMBF) looks outside the box in 2018 into diverse and exciting working environments of the future.

https://www.wissenschaftsjahr.de/2018/uebergreifende-informationen/about-the-science-year/
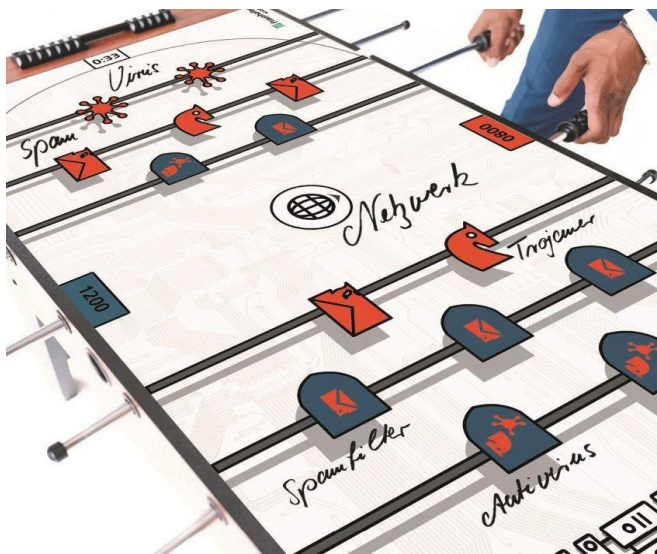
**The Cyberkicker can be used to interactively learn about IT security topics such as the fight against tojaners and viruses.
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